
SIGMA
The bulletin of European statistics
APR 19 2001
Library
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New Economy
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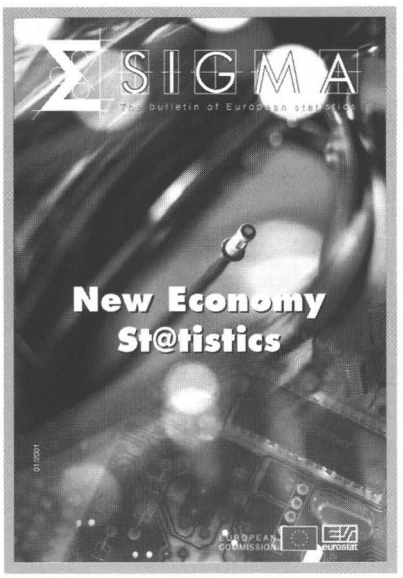

***Sigma* – the bulletin of European statistics produced in Luxembourg by Eurostat**

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Published by
Office for Official Publications of the European Communities

Catalogue number
KS-AB-01-001-EN-C

Printed in Luxembourg

Views expressed in *Sigma* are those of the authors, not necessarily those of the European Commission

Sigma is available free of charge from:
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In *this issue* of *Sigma*...

It may be one of the most pervasive forces of our times, penetrating every nook and cranny of the economy and even society at large. Yet, there is still no official agreement on the basic concepts defining it, making the statistical measurement of this phenomenon a difficult exercise. We are, of course, referring here to the New Economy and to the challenges it poses to our daily lives and to statisticians across Europe.

In the course of your reading, we aim to:

- present you with the basic issues surrounding the question,
- outline some of the major statistical challenges created by the New Economy,
- cast light on ongoing statistical developments in the field,
- show how some Member States have risen to meet the challenges, and
- enable some users to vent their views and expectations.

Pedro Diaz, Director of Eurostat's 'Business Statistics', sets the scene before European Commissioner **Erkki Liikanen** briefs us on the role of Europe in the New Economy and on his expectations of statistics.

Then, five specialists from Eurostat approach the issue from every possible angle to help the reader grasp the statistical challenges at stake:

Jean-Louis Mercy, of the Research and Development Unit, and **Douglas Koszerek**, in charge of Information Society statistics, prepare the ground before **Bart Meganck**, Director of 'Economic Statistics', brings a macro-economic perspective, **Photis Nanopoulos**, Director of 'Statistical Information System, Research and Data Analysis, Technical cooperation with Phare and Tacis Countries' explains why the New Economy calls for new ways in the production of statistics while **Pedro Diaz** introduces the impacts on business statistics.

Member States were not overlooked as *Sigma* collected the latest views and developments from Information Society statistical pioneer **Finland; France** – a nation with a statistical battle plan; and **Spain**, ...

Andrew W. Wyckoff, of the OECD – a key player in New Economy statistics, echoes the call for a new statistical framework.

Users also had an opportunity to take the floor: **Detlef Eckert**, of DG 'Information Society', talks about the Commission's ambitions for more rapid development; **Pedro Ortún** of DG 'Enterprise' explains how companies are about to "go digital".

Christopher Hurst, of the European Investment Bank EIB, talks about the need for a sound statistical basis, while **Axel Pols**, Bitkom, brings in an association's perspective and talks about EITO, the European Information Technology Observatory.

This collections of views and information may not provide you with all the answers on the New Economy and the Information Society, but it should certainly help you better understand what is at stake at the broader international level and within statistics.

Also in *this issue*...

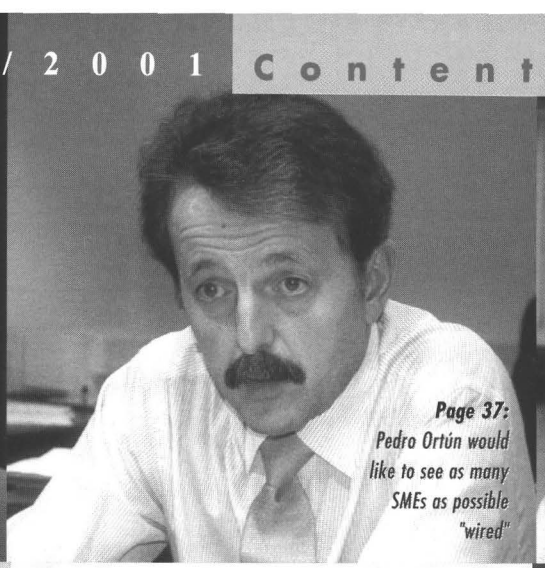
Donal Garvey takes up his post as the new head of Ireland's CSO and talks about his priorities. **Guy Zacharias**, from Statec Luxembourg, presents a statistical yearbook that crosses four borders. And an international conference on quality in official statistics will take place in May in Stockholm.

We wrap up this issue with some ESS and in-house developments. **Alan Clarke** talks about the new Task Force on Human Resources, that aims to help meeting ever-increasing statistical challenges. **Alain Chantraine** retires from Eurostat after some 38 years of loyal service and speaks in his farewell interview about dancing statisticians and the importance of being responsive to Commission needs.

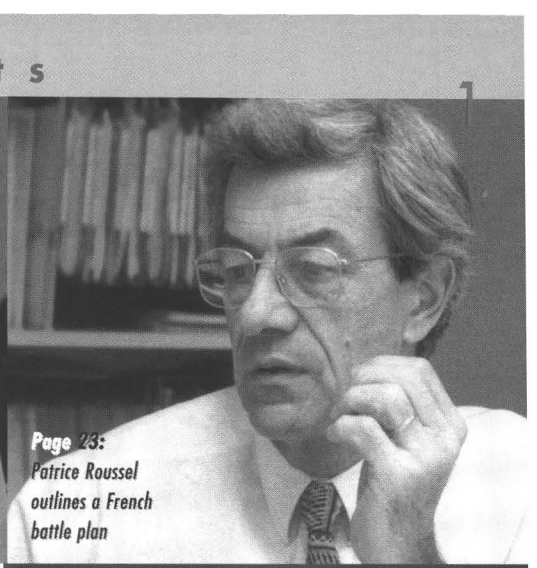
Fons Theis
Assistant chief editor

We would like to thank all those who have contributed to this edition, in particular:
Per-Åke Bladh, Alain Chantraine, Alan Clarke, Fernando Cortina García, Pedro Diaz Muñoz, Adam McDonaugh, Detlef Eckert, Crister Haglund, Per Haugaard, Pedro J. Herrera Giménez, Kaija Hovi, Christopher Hurst, Douglas Koszerek, Pirjo Liewendahl, Paulo Louro, Lars Lyberg, Bart Meganck, Jean-Louis Mercy, José L. de Miguel, Kevin Moriarty, Photis Nanopoulos, Pedro Ortún, Carola Peter, Axel Pols, Bernadette Reynebeau, Patrice Roussel, Patrick Vanhoudt, Eryl Williams, Andrew Wyckoff, Guy Zacharias – and, of course, all our 'correspondents' in Member States

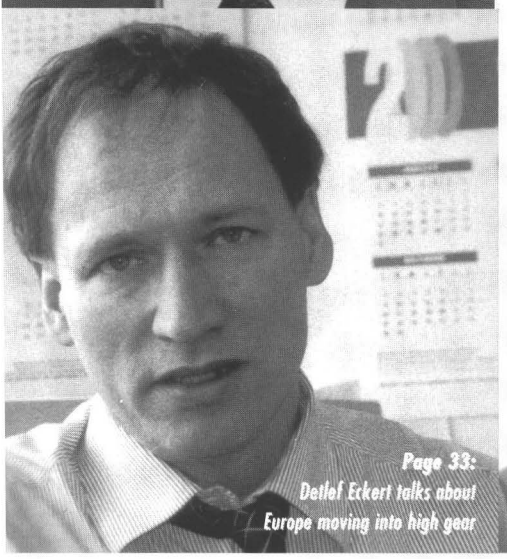
Page 4: EU Commissioner Erkki Liikanen briefs us on EU policy actions



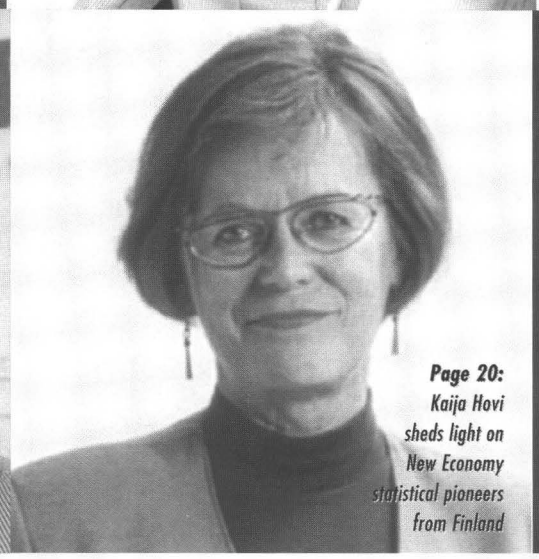
Page 37: Pedro Ortún would like to see as many SMEs as possible "wired"



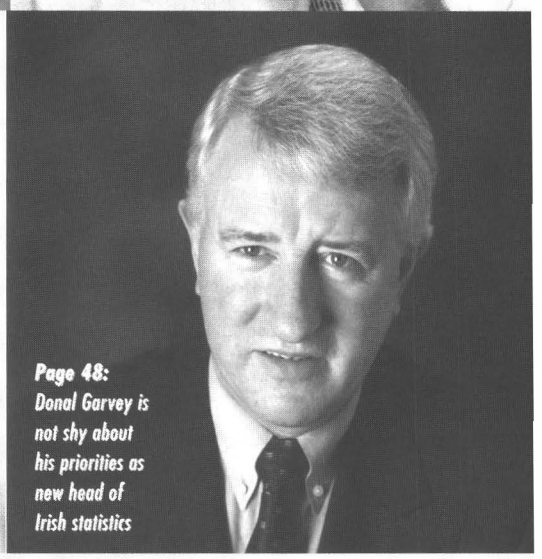
Page 23: Patrice Roussel outlines a French battle plan



Page 33: Detlef Eckert talks about Europe moving into high gear



Page 20: Kaija Hovi sheds light on New Economy statistical pioneers from Finland



Page 48: Donal Garvey is not shy about his priorities as new head of Irish statistics

Of tortoises, lampposts...

The story of the race between Achilles and the tortoise was brought up by a colleague statistician from ISTAT during a recent seminar on the future statistical needs for the service sectors – and fittingly so...

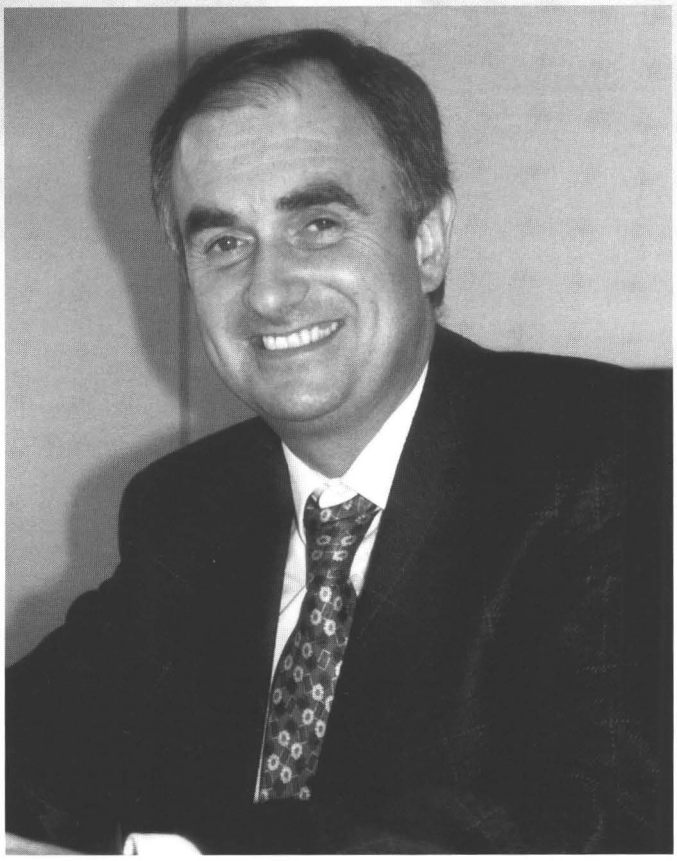
Once a need is identified, the statistical approach to produce data is put into place. This is a lengthy process that involves several phases such as a conceptual framework, a feasibility analysis, negotiation with the social partners, a methodological study and pilot data collections. Thus, by the time the data are available new needs may have arisen that make them not completely satisfactory for users.

... The fast tortoise has thus moved a step forward and the slow Achilles has to continue pursuing it.

Quickly evolving needs

Of course, statisticians are used to living with the problem of changing needs, and statistical systems evolve continuously to adapt to them. What is new is the speed in which interest in the New Economy has moved up the political agenda and the need for indicators to monitor the intensity of the different phenomena and their impact on society.

In this issue of *Sigma*, several articles present users' needs – Commissioner



Liikanen, and officials from DG 'Enterprise' and DG 'Information Society' and from the European Investment Bank. These needs are pressing for several reasons.

One that should not be neglected is timeliness. In fact, when indicators such as the number of Internet users can double in a year in some countries, data produced with a time lag of several years lose much of their utility.

Multiplicity of aspects

But it is not only quickly-evolving needs that characterises New Economy statistics. There are several other elements that are worth mentioning. First of all is the multiplicity of aspects involved:

- the New Economy may be measured from the point of view of the offer (enterprises and product statistics);
- but also from that of the infrastructure that allows its penetration (employment, innovation, education, vocational training,...); *and*
- the analysis of the impact (indicators of productivity, prices, competitiveness, labour market,...).

Nearly all statistical domains are concerned and have to provide data related to the New Economy. Therefore, a significant coordination effort is necessary to establish a reference framework for multi-domain data.

At Eurostat, experts from different statistical fields involved in collecting New Economy statistics have teamed together to set up this framework. The challenges now and ahead are presented in the interviews with Photis Nanopoulos and myself, and in the contributions of Bart Meganck, Douglas Koszerek and Jean-Louis Mercy.

International efforts

The need to develop statistics rapidly involves several important risks. First, the lack of a commonly agreed conceptual framework hampers the comparability of data produced by different countries or sources, causes undesirable duplication of methodological work and diminishes greatly the quality and interpretability of the results obtained.

At the international level, under the initiative of the OECD, there has been much energy spent on developing a common conceptual framework. Eurostat has supported these efforts, as they would make EU data comparable with that of other advanced economies such as the US, Canada and Japan.

The Vöorburg Group has also been an important player in assessing the feasibility of putting this common conceptual framework into practice.

The article from Andrew Wyckoff on OECD activities

and the New Economy

and the panel on the Voorburg Group explains more.

The 'lamppost syndrome'

The second risk concerns, on the one hand, the proliferation of data sources, whose quality is difficult to assess, and on the other, the existence of important information gaps that these sources are only able to fill in a limited way. The consequence of this is that users may be tempted to rely on available data without sufficient information to verify their quality and pertinence regarding the phenomenon to be measured.

This situation is rather like the so-called 'lamppost syndrome': the person who looks for his lost keys under the beam of a lamppost because he can see very well there, although he lost them in an unlit area further away.

A third risk linked to the multiplicity of sources is their contradictory results. For example, the analysis of several available statistics on e-commerce penetration shows figures that are at least double one another. Users, without much information about the quality of the different sources, may choose those that are more easily accessible, better known, or give the desired results for their hypothesis. And this gives rise to a second 'lamppost syndrome'– the drunkard who leans on a lamppost for support instead of using it, as it is intended, to light up the way.

Nevertheless, the New Economy is a very complex set of phenomena and data for different sources are needed to measure it. The coexistence of private and official statistics will have to be maintained in order to fill information gaps and diverse needs in a satisfactory way.

Some private sources have, in fact, public support and provide data that are currently used to complete a system of indicators. The article from Axel Pols on the activities of the European Information Technology Observatory (EITO) is a good illustration of this.

Furthermore, innovative methods of data production will also need to be explored. In some cases, these could rely on the wealth of information already available in the existing networks of sources. The utility of research programmes for this purpose is evident and the article by Jean-Louis Mercy on this issue develops this idea.

Coming closer

Certain elements are being put in place so that Achilles will come satisfactorily close to the tortoise and the lampposts will illuminate enough ground to find the lost keys. Indeed, statistical organisations are progressing, albeit not all at the same pace, to establish a sound set of data on the New Economy.

This issue of *Sigma* presents the situation in three EU-countries that are coping with the demand for this information or are developing the tools to do so. Moreover, the motivation to make progress in this domain is common to all EU countries, and the objective of building a comparable data set is a shared one.

Eurostat is committed to incorporating the durable elements of the New Economy into mainstream statistics. To do this, it is evolving a multi-phase development plan that covers conceptual work, the adaptation of statistical classifications and stable data production. In parallel, it will disseminate information already available, and launch specific ad-hoc surveys. This data set of official comparable data will be complemented by information from private sources with verified quality.

The New Economy is both a challenge and an opportunity for European statistics. It is an opportunity because it brings a number of statistical issues into the limelight that need to be resolved, such as the adaptation of classifications, the measurement of intangible output and investment, the treatment of quality changes in the calculations of prices of services, etc. Once these are solved, the benefits will spread through the entire statistical system.

Pedro Diaz Muñoz
Director of 'Business Statistics', Eurostat

Eurostat publications on the Information Society

Following increased demand, Eurostat is widening its publication programme on the Information Society this year.

Two Statistics in Focus (SIF) have already been published at the beginning of the year:

- basic Information Society statistics for the EU with data on the number of PCs, Internet hosts and users, the IT market and mobile phone subscriptions; *and*
- Information Society Statistics for Central and Eastern European Candidate countries with similar data-sets.

Others will follow on:

- e-commerce in distributive trade
- Internet: key data
- Information and Telecommunication Industries
- Computer services
- e-commerce: results of the pilot surveys.

All these will be available on the Internet.

In addition, Eurostat will publish a statistical pocket book with key figures on the Information Society (covering general data, economic parameters of the ICT sector and ICT usage in households and enterprises). A more comprehensive publication with the working title 'eEurope trends 2001' is also foreseen.

ERKKI LIIKANEN, European Commissioner responsible for Enterprise and Information Society, gives *Sigma* the latest state-of-play on the policy actions undertaken to further the New Economy and expresses his expectations of statistics.

Europe in the New Economy

The last five years have witnessed a remarkable acceleration of the expansion and use of digital technologies in the economy and society at large. This has led to visible changes in our daily life, in particular with the explosion of mobile communications and of the Internet. Less visible, yet far-reaching, is the impact of digital technologies on the way the economy works, as a result of the progressive digitisation of the production and distribution chain of goods and services, and the rapidly expanding flows of digitised information on fixed and wireless communications networks.

The evolution of the technological, regulatory and international environment plays an important role in this process. While the performance of electronic micro-components keeps increasing at a steady pace, the liberalisation of telecommunications markets and economic globalisation have increased competition and released the huge innovation potential of digital technologies. This process is giving birth to the "New Economy".

At macro-economic level, the New Economy corresponds to sustained, non-inflationary economic growth, associated with a high level of employment, as has been observed in the USA with an average annual growth rate of 3.2% over the last decade. At micro-economic level, the New Economy corresponds to new ways of conducting business and organising work, as well as new qualifications and skills.

eEurope: the EU policy response

At the special European Council meeting held in Lisbon on 23 and 24 March 2000, EU Heads of State and governments decided to speed up Europe's entry into the New Economy. The *e*Europe initiative[1], launched by the Commission in December 1999, plays a leading role in this process. It aims to quickly harness the opportunities offered by digital technologies and the Internet, and to bring the whole of Europe on-line – citizens, businesses and public services alike. An action plan defining priority measures to quickly reach this objective was adopted at the European Council in Feira on 19-20 June 2000. It focuses on three main objectives:

- Cheaper, faster and secure Internet,
- Investing in people and skills,
- Stimulating the use of the Internet.

The launch of *e*Europe does not mean that Europe is starting from scratch. *e*Europe is largely based on existing policies at European and national levels. The aim is to develop, accelerate and, where appropriate, supplement them. But above all, *e*Europe is an overall strategy, which, for the first time, fully integrates, and co-ordinates EU and Member States' Information Society policies on the basis of common objectives and deadlines.

A progress report has been presented by the Commission to the European Council in Nice on 7, 8 and 9 December 2000. It emphasises that since its inception, in December 1999, the *e*Europe initiative has had significant political impact. There is an unprecedented level of mobilisation in all Member States, and beyond the EU. Similar initiatives have also been launched by Norway and Eastern and Central European countries.

The *e*Europe initiative has accelerated the legislative process, with the adoption of major pieces of legislation. Key achievements to date include the unbundling of the fixed telecommunications local loop in January 2001, the liberalisation of intra-Community shipments of encryption goods, the creation of a Community-wide framework for electronic signatures by mid-2001, and major steps towards the completion of the Internal Market for electronic commerce.

Important progress has also been made on specific issues, notably in the field of the smart card, the upgrade of trans-European research networks and support for the development of European digital content for the Internet.

A new framework for electronic communications

The creation of a sound framework for electronic communications is one of *e*Europe's top priorities. Only two years after it came into force, and despite its very positive impact on tariffs and consumer choice, the new liberalised framework for telecommunications is already increasingly challenged by fast-evolving market and technological conditions. The two main drivers of change are the Internet and the convergence between information technologies, telecommunications and the media.

To address these issues, the Commission has tabled a new pro-competitive regulatory package for electronic communications. The main characteristics of the pro-

posed package are a clear distinction between content regulation and network regulation, and a single regulation for all electronic communication networks. Once competition is effective in a given market segment, sectoral regulation will be rolled back, leaving increasing room for the application of general competition law.

Rapid progress is also being made on the new telecommunications package, thanks in particular to close cooperation between the Council and the European Parliament. This has resulted in the adoption, in only half a year, of the EU Regulation on local loop unbundling, which aims to intensify competition in local access networks in order to lower Internet access tariffs. This will also stimulate the offer, on a competitive basis, of high-speed Internet access based on the ADSL (Asymmetric Digital Subscriber Line) technology, which uses regular phone lines. It is hoped that the rest of the package will also benefit from such a fast-track approach, so that it can be adopted before the end of 2001.

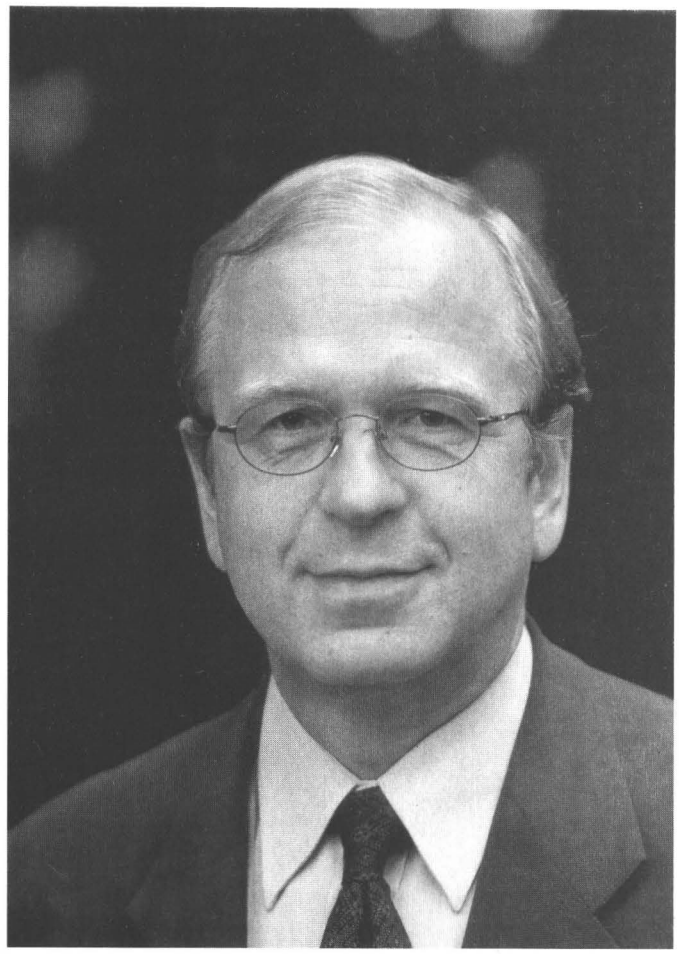
The new framework for electronic communications must be complemented by adequate measures to ensure security on the networks and the protection of user privacy and personal data. These are essential prerequisites to secure user confidence, and thus foster the growth of the Internet and electronic commerce. Adequate technologies exist, therefore all that is needed is a favourable framework to encourage their widespread use. The EU is at the forefront in this area.

By next summer, the legal and mutual recognition of electronic signatures will be ensured throughout the Union and, subject to certain conditions, with third countries. Trade in encryption products has now been liberalised between EU Member States, and facilitated with our main trading partners. There is also a need to step up the fight against cyber crime, something that can only be effectively done at European or international level.

Benchmarking and statistics

The development and implementation of policies in the field of the Information Society requires the availability of very recent, accurate, reliable and consistent statistical data. As regards the eEurope Action Plan, an open method of co-ordination and benchmarking is being applied to ensure that actions are carried out effectively and have the intended impact in all Member States. A list of 23 indicators has been defined to measure progress. However, up until now, it has been extremely difficult to collect essential Information Society statistical data, mainly for the following reasons:

- Fast emerging digital products and services are not yet tracked in a consistent manner by official statistical systems at national and EU levels. This is the case for instance with the number of residential and professional Internet users. The same applies to Internet-related activities such as Internet service provision.
- In key areas such as mobile communications and the Internet, which are characterised by double-digit annual growth rates, critical data gets outdated in a matter of six months. In Information Society related-sectors, the measure of progress based on data that are 18-months old – a standard for many traditional activities – is no longer acceptable. This calls for an acceleration of the production cycle of statistical data, from data collection to their publication.



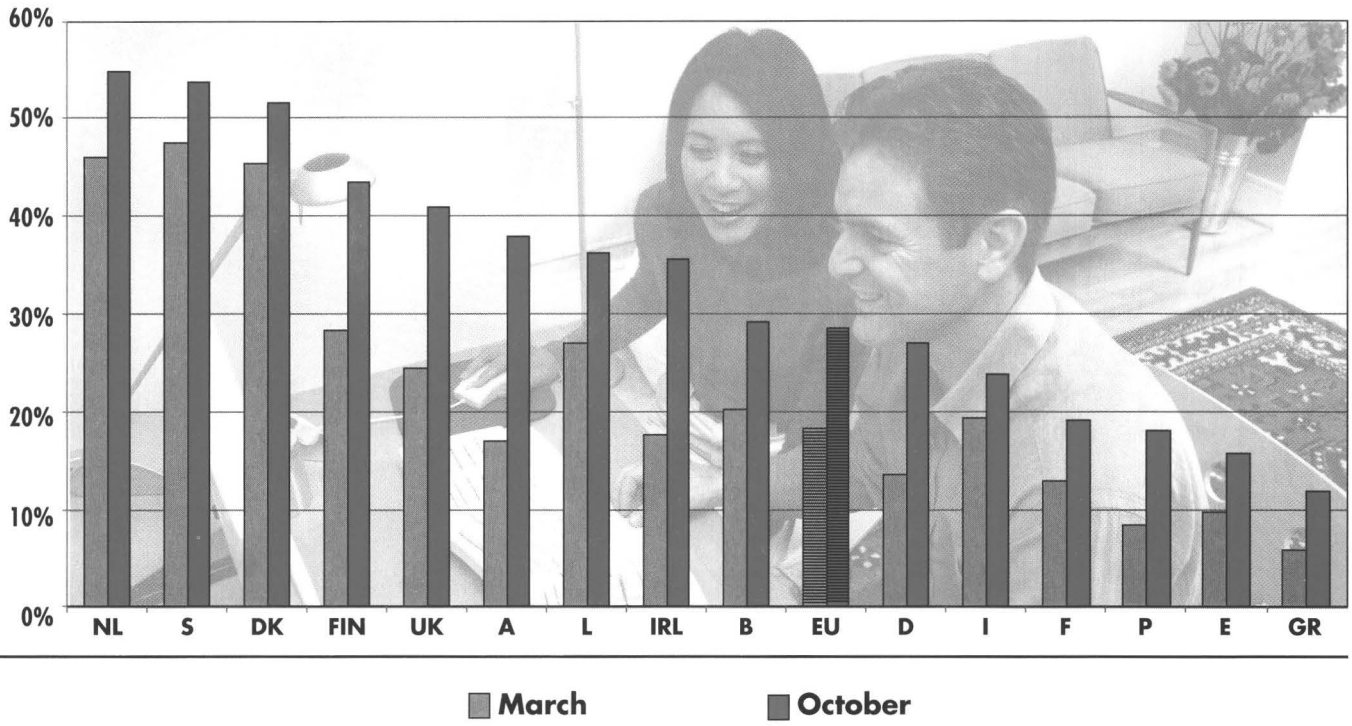
Erkki Liikanen: confident that European statistics will meet the challenges of the New Economy

In order to collect the required data for benchmarking the eEurope Action Plan, the Commission has to launch specialised surveys. This solution is also being increasingly implemented at national level by statistical offices.

Beyond this short-term solution, there is a real need to develop and implement more structural solutions:

First, I see the need to accelerate the modernisation of the official statistical nomenclatures in order to reflect the development of new activities that go across sectoral borders, as the result of convergence.

Internet Penetration in EU homes / March-October 2000



The graph shows the results of two Eurobarometer surveys the Commission launched as part of eEurope to measure the evolution of Internet penetration in households. In March 2000 15,900 people and in October 2000 22,562 people were interviewed in the 15 EU Member States.

Second, the production cycle of statistics has to be shortened in order to release more recent data and more frequently. The digitisation of the production cycle in most industrial activities has allowed to reduce the time needed to market products. The same should apply to the production of statistics.

Third, the digitisation of the economy offers new possibilities to capture data, which could be exploited by the official statistical administrations. One example is the data mining applications used by the marketing sector to exploit the huge streams of data transmitted over the Internet – although this raises business confidentiality and privacy concerns in many EU countries. The EU's Information Society Technology (IST) Programme co-finances research projects that address these issues[2].

Fourth, there is the need to better understand the sectoral impact of the New Economy on industrial sectors. The borderlines between traditional sectors are increasingly blurring, thus changing competitive patterns. In most industries, the use of ICT has not yet resulted in remarkable higher productivity. An explanation could be that the productivity effects of investments in ICT can only be reaped by further organisational changes, which may take time to be implemented. DG 'Enterprise' will launch further benchmarking studies on this issue, helping European industries to define reasonable 'e-strategies' at sectoral level.

And finally, many initiatives for the promotion of ICT and e-business, notably for SMEs, have been launched over the past few years, at national and European level. Although information about them is readily available, there is still need to better understand the different approaches and to identify best practises. Under the 'BEST' programme[3], the Commission will therefore benchmark national and regional ICT and e-business strategies and compare the results achieved so far.

The transition towards the New Economy is making progress in Europe. The eEurope initiative sets the strategy and the tools to accelerate this process by bringing Europe on-line. In this period of rapid and deep change, policy-makers need to have an even better perception of the ongoing mutation of the economy's structure, functioning and performance. I am confident the European community of statisticians will be able to take up the challenge of measuring the New Economy. ■

1) http://europa.eu.int/comm/information_society/eeurope/index_en.htm

2) www.cordis.lu/ist/

3) A Business Environment Simplification Task Force (BEST) was created in July 1997 to improve the quality of legislation and eliminate unnecessary burdens which restrain the development of European businesses and especially SMEs. Recommendations were made in five areas, one referring to new technologies.

In the absence of a universal consensus on the definition of the New Economy, Eurostat's **JEAN-LOUIS MERCY** attempts, in this article, to sketch out a working concept to help us understand its far-reaching consequences for statistics and the ground to be covered ahead.

How to approach the New Economy?

One of the unique features of our time is that rapid changes are taking place in the content, dynamics and structure of the digital, knowledge-based economy. This transition from the industrial to the Information Society is characterised by the rapid growth of intangible assets, whereas economic and social activity still relies substantially on physical, tangible goods. The relation between the two has to be defined and measured.

One major difficulty is the lack of a commonly agreed definition. However, most experts have listed the following characteristics:

Knowledge-based

The New Economy is knowledge-based. In 1996, Alan Greenspan, Chairman of the US Federal Reserve Bank, made an interesting observation. Apparently, the economic output of the USA today weighs the same (measured in terms of physical weight, tonnage) as it did 100 years ago. Yet during that time, economic output has increased 100-fold in real terms. Clearly the nature of what we produce has changed – from heavy physical goods, to services and intangibles.

The agile enterprise

The New Economy is becoming molecular, with economies of scale being achieved through networking amongst the "molecules". The primary driver of continuous change is ever-increasing competition in the global economy. The widespread adoption of information technologies introduced the rich set of inter-connections and inter-dependencies that transformed the many national economies into a single global market. At the same time, the information technologies provide companies with one of their main tools for handling change. They enable companies quickly to change their organisations, to work more closely with their partners and suppliers, and rapidly to bring new products to market.

Jean-Louis Mercy: "The development of relevant and significant indicators for the New Economy is a precondition to fully comprehend this New Economy."

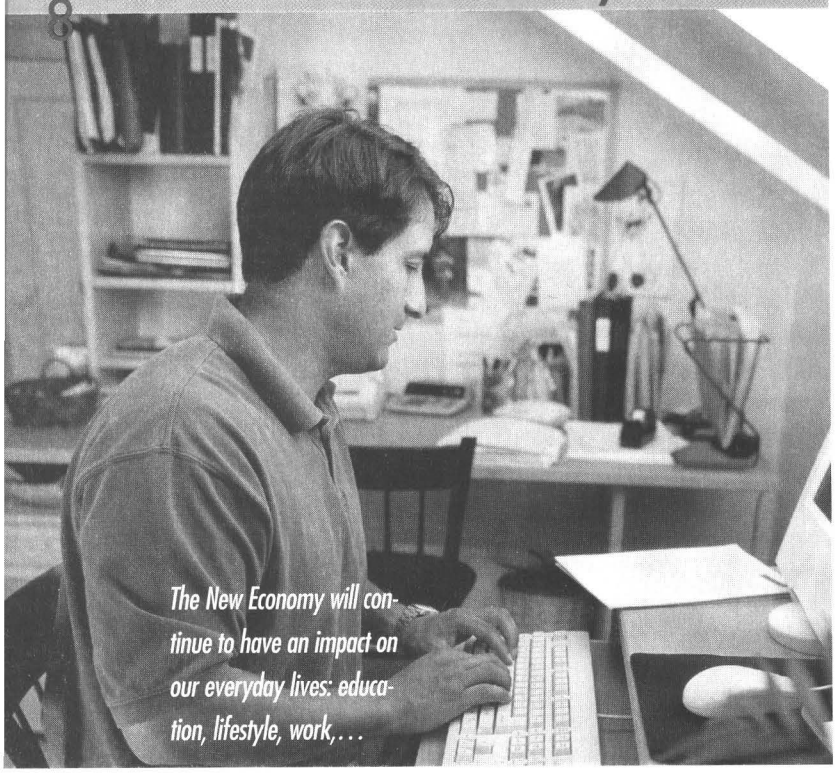
Virtual communities

Generally, the New Economy is characterised by virtuality. One particular area is worth specific mention. Traditionally, the vast majority of communities have been defined, and constrained, by geographical proximity. But the Information Society technologies are demolishing the barriers of distance. People are creating new communities that are not determined by geographical location but only by common interests.

The excluded middleman

Everywhere we look, the middleman is being excluded. The trend of by-passing the intermediaries in the business supply chain is now well established – producers deal directly with end consumers. Meanwhile, mid-level management is also under threat. Over the past few years, many companies have trans-

This article is based on a more comprehensive paper (*"Statistical Indicators for the New Economy"*) produced by the Information Society Directorate General and Eurostat, in order to better define the needs and scope for research and development of new indicators. This paper is also part of EPROS – The European Plan for Research in Official Statistics. It is accessible on the Eurostat website under the following address: http://europa.eu.int/en/comm/eurostat/research/retd/sine5th.pdf



The New Economy will continue to have an impact on our everyday lives: education, lifestyle, work,...

formed both their business processes and their organisations. However, new forms of intermediaries emerge, and could be highly valued on the financial markets.

The impact of these changes on the whole society seems to be very significant both nationally and globally. And the new realities appear quickly. Thus, it has become urgent to develop the means to describe, understand, measure and assess it better. New perspectives and paradigms are needed. More important, public and private policymaking needs to have reliable quantitative information on the growth, pattern, content and impact of the new digital economy.

One can roughly distinguish four areas in which indicators are required: technology, industry, economy, and social.

The technology domain comprises the major technological changes that constitute the foundations of the New Economy and future economic growth. Briefly, these would cover indicators of enablers and accelerators of the information revolution, such as improvements in processing power, storage and communications; convergence, but also information on the penetration and use of digital technologies in the public and private sectors, and across regions and countries as well as on the speed and direction of technological progress.

There are close connections between the technology domain and the industry domain. The single digital space is becoming the basis of all sectors. At the same time, organisational transformation proceeds at a rapid pace. Public and private organisations evolve towards smart organisations, using knowledge, managing intangible assets and behaving dynamically. Small enterprises can achieve economies of scale in the digitally networked economy. There are the "gazelle" firms in which innovation is a process of continuous renewal. The development of electronic commerce has both positive and negative impacts on transport needs, major environmental and spatial planning issues.

It is essential to capture the nature of the transition from the industrial to the New Economy. Some factors that are considered to reflect this shift are, e.g., industrial and occupational change, growth in the service sector, factors that reflect the pace of globalisation, etc. Furthermore, the New Economy is a knowledge economy. Thus, indicators of the nature, strengths, weaknesses and trends in the skills base would be necessary, together with measures of the level, production, distribution and utilisation of intellectual capital. Such new indicators should provide a firmer basis for identifying areas for policy actions to promote employment and competitiveness.

In addition, the measurement of environmental aspects is another area where conceptual work and indicators are needed. This would address IST (Inforamtion Society Technologies Programme) related eco-efficiency indicators or indicators related to the dematerialisation of industrial and business processes, resource productivity, rebound effects, recycling and re-use.

All the effects mentioned in these domains above infiltrate, in varying degrees, the social sphere. Thus, while the first three domains might be regarded as concerned with "inputs and throughputs", the social domain reflects the ultimate "outputs" of IST, i.e. outcomes in terms of the gains and losses for people. Smart cards, smart household appliances, intelligent traffic control systems, distributed classrooms by satellites, remote and on-line publication of electronic multimedia materials, web-based quality information on quality products across Europe, the electronic marketplace, 3-D virtual images and new ways of experiencing the world all affect our daily lives.

The New Economy will continue to make a difference to the way we live, how we work, learn, play, interact and even think. But we lack the indicators and the data to tell us exactly the nature and magnitudes of those differences. It is therefore obvious that a vast range of social impacts need to be measured and monitored.

Thus, the required indicators should capture the consequences of the New Economy for European living conditions and lifestyles, more specifically for wealth creation, income distribution, earnings inequalities, education and training, social protection and social cohesion, (including the risks of the emergence of an information underclass), demographic dynamics, individual empowerment, new communities, changing cultural norms, and so on.

Challenges for statistics

The new economic environment shaped by the drastic changes in technology and the way the international economy functions poses huge challenges for statistical measurement instruments and processes. Classical methods need to be adapted, more automatic and intelligent data

sources would need to be developed. Yet, several Statistical Indicators for the New Economy are already available. However, there seems to be relatively more data available in the technology domain than in the others, specifically on tangibles and on the supply or input side of IST than on intangibles and ultimate outcomes.

A non-negligible task should be to evaluate the existing data. On the other hand, the limitations of the patchwork approach might still require data supplementation, even substantial replacement, by fresh data collection.

Furthermore, economic restructuring requires a review of existing nomenclatures on economic activity (NACE); products (CPA/CPS); trade (the Harmonised System); and occupations (ISCO) to take account of New Economy variables, e.g. the technological characteristics and the knowledge content of the entities to be classified. An example of such a review, though limited, was the North American Industrial Classification System (NAICS).

An underlying classification issue would be the growth of embedded intangibility, the increasingly nebulous boundary between tangible and intangible goods, between goods and services, visible and invisible trade, knowledge-based occupations and others, and so on.

We seem to be at the crossroads of understanding. The development of relevant and significant indicators for the New Economy is a precondition to fully comprehend this New Economy. ■

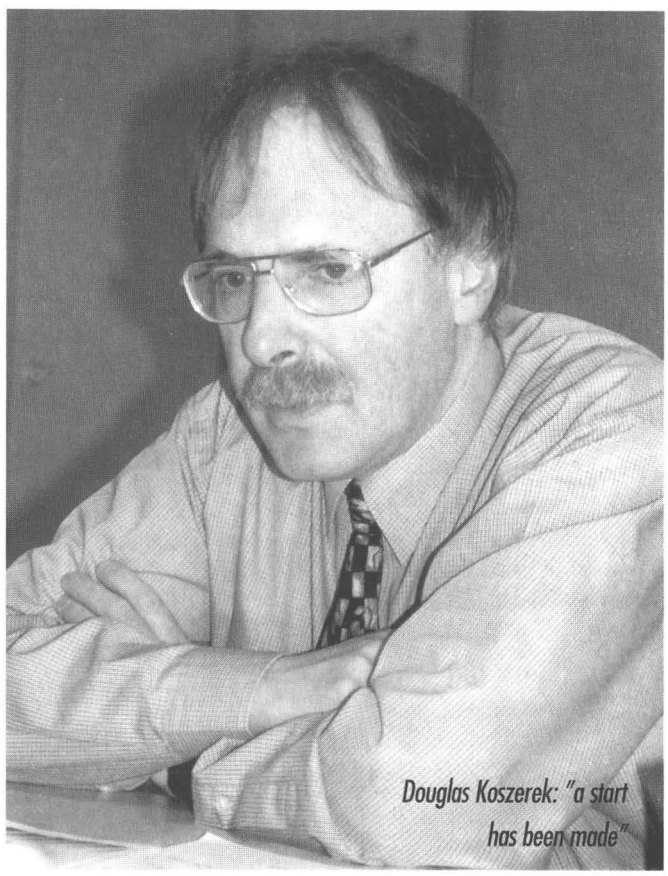
Statisticians the world over long for indicators targeting quantifiable and well-defined statistical objects that withstand the test of time. Policy-makers, for their part, want relevant indicators upon which they can base their policies. So far, with the New Economy, neither statisticians nor policy-makers have been able to declare themselves totally satisfied with the existing dataset.

DOUGLAS KOSZEREK, in charge of Information Society Statistics in Eurostat's directorate for business statistics, briefs us on the background to the New Economy and explains the challenges of ...

Measuring the undefined

In the last decade personal computers and access to the Internet have become common in the workplace. Recent surveys show that households are also increasingly connected to the Internet, though with a low usage amongst low-income households and the elderly. There are over 100 million Internet users in the European Union.

The Internet economy is sometimes described as the "New Economy". For a time, "New Economy" enterprises seemed to be very different from their "Old Economy" brethren, obeying quite different economic laws.



Douglas Koszerek: "a start has been made"

Intangible capital

What separated them (apart from their different dependence on the Internet) was that the capital value of New Economy enterprises was mainly held in the form of intangible assets, as distinct from physical or financial assets. Examples of intangible assets are organisational practices which give a competitive edge, brands which allow an enterprise to sell at higher prices than its competitors, and the results of successful R&D.

Whereas physical assets have limited capacity (for example, a plane can fly on only one route at a time), intangible assets (such as a computer operating system or a leading web portal) can be used as many times as needed. Indeed there are often increasing returns on them. If its services become a de facto standard, the enterprise is sheltered from competition in the short run, it benefits automatically from the market growth, and it can charge higher prices. Thus many New Economy enterprises aimed to obtain a high market share early, even if they had to make large losses initially.

However "Old Economy" enterprises, rather than see their markets disappear, are also now exploiting the opportunities offered by the Internet, and a process of convergence is underway.

All aboard the Information Society

The changes brought about by the Internet are both economic and social. The social aspect is highlighted in another commonly-used term, the "Information Society", referring to the massive growth of information available digitally through computers and the Internet.

The Information Society refers to the social and economic impact of the take-up of the products (services and goods) of information and communication technologies (ICT) and digital content producing sectors. Some of the impacts are fairly direct, such as the growth of e-commerce. Others are indirect, like the new forms of business organisation that become possible with new technology, or the reinforcement of the trend towards globalisation due to faster and greater global information flows.

The *e*Europe Action Plan adopted by the European Council promotes the rapid adoption of Internet technologies. Linked to this policy is the need for benchmarking and improved statistics. Global comparisons are needed, and this requires international cooperation. Eurostat is working with the OECD and the Voorburg Group on services statistics to develop internationally agreed concepts and methods.

Some of the characteristics of the New Economy/ Information Society are quite challenging to measure for three reasons:

- Firstly, technical change is rapid, making it necessary to revise frameworks and classifications more frequently. In addition, quality changes pose particular problems for the measurement of real output and productivity.
- Secondly, many areas of statistics are affected. New statistics are needed on businesses, households, the labour market, education, health, etc.
- Thirdly, intangible assets are important, and they are notoriously difficult to measure. Accounting systems currently treat investment in intangible assets in the same way as current expenditure. This practice reduces the measured value added of enterprises which invest heavily in intangible assets. This may lead to their economic contribution being underappreciated while they are growing rapidly.

However a start has been made in many areas. The Community's Fifth Framework Programme on R&D finances research on "Statistical Indicators of the New Economy", and several promising areas are being explored.

Progress on products and sectors

On the classifications side, a definition of the sectors which make up the supply side of the Information Society has been agreed at OECD level, and work is well advanced on drawing up lists of Information Society products (ICT manufactures, ICT services, and digital content products) to be used for the production of statistics.

The OECD has also been active in developing definitions of e-commerce for data collection. In the longer term, this work will contribute to the reflections on the next major update by Eurostat of the NACE activity classification, planned for 2007.

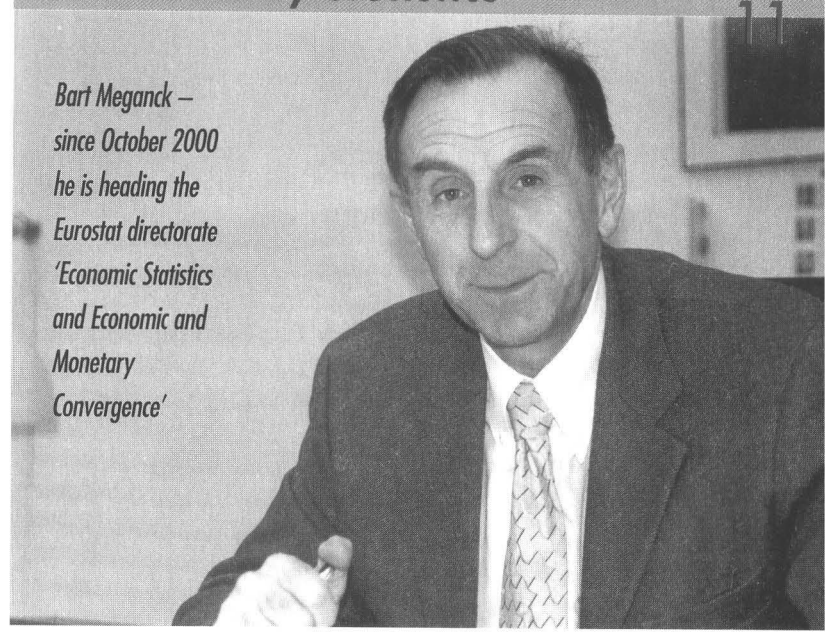
Eurostat keeps an inventory of sources on Information Society statistics for EU countries, and collects available data from Member States and other sources. Several Member States carry out regular surveys of ICT usage in enterprises, and some carry out surveys on ICT usage in households. In 2001, at least one Member State will survey ICT usage in government.

Inspiration from Nordic countries

The surveys of ICT usage by the Nordic countries were the starting point for designing a Community pilot survey of enterprises on e-commerce to be carried out in 2001 involving 13 Member States. The survey includes questions on the readiness of enterprises for e-commerce (availability of infrastructure, actual or perceived barriers) and their actual usage of it as customers and suppliers. There are questions both on Internet based e-commerce and non-Internet e-commerce (mainly traditional electronic data interchange EDI) in order to be able to follow the migration of the latter to the former. The first results from this survey will be available in the summer of 2001.

Another development in 2001 will be a pilot survey on computer services carried out in several Member States under the framework of the Community Structural Business Surveys. This will ask for a breakdown of the turnover of IT enterprises into its major components.

As can be gathered from these developments, Eurostat and various national statistical institutes are closely cooperating to better chart the rather untested statistical waters of the Information Society. Cooperation with international bodies such as the OECD or the UN-sponsored Voorburg Group also helps us find workable and operational responses to the new statistical needs that ought to deliver data that are comparable at international level. In the not-so-distant future, the only "new" thing about the New Economy, from a statistical point of view, should be the growing number of new indicators on it becoming available. ■



Bart Meganck – since October 2000 he is heading the Eurostat directorate 'Economic Statistics and Economic and Monetary Convergence'

Is the New Economy REAL ?

A macro-economic perspective by Bart Meganck

The New Economy is currently attracting lots of attention, but it is turning out to be a somewhat elusive concept bearing many names. People refer successively to the Information Society, the digital economy and e-commerce, the post-industrial economy or they identify in this the reasons why the US economy has expanded more rapidly in recent times than Europe's economies. In this article, we briefly consider some aspects of the New Economy and the statistical challenges they pose.

The economy we live in is made up of billions of transactions taking place every day. Goods and services are produced in enterprises and sold to customers. People go to work in these enterprises and receive salaries in exchange and so on. Some of these transactions are more affected by the emergence of the New Economy than others, but the fundamental concepts do not change.

Suppose every citizen of the Union bought 100 Euro of goods or services over the Web. This would generate some 35 billion Euro, which is a lot of money per se, but set against the 5000 billion Euro of consumption by EU households every year does not even represent 1% of total consumption.

E-commerce remains small

E-commerce is clearly growing but studies in several countries, including the US, Canada and the UK, show that it currently represents only a tiny fraction of consumer spending.

Up to now e-commerce has had no impact on the major areas of household spending: rent, heating and light; buying a car, petrol and insurance; most food and clothing, etc. The products that are transacted over the Web are still being produced and purchased; the only real difference is that they are simply channelled to consumers through the post or by lorry rather than through retail outlets.

The main challenge for statisticians is to adjust the collection of basic statistics to identify and measure the new distribution channels. Such transactions must be captured by surveys on production, retail sales and household budget surveys. Moreover, they may have different price levels and fluctuations that need to be reflected when compiling price indices, in the same way that we distinguish between sales through supermarkets or small shops.

Finally, the Internet makes it fairly easy to order from abroad, so import and export data for goods, services and financial assets need to be adjusted to ensure these flows are not missed.

Information technology – a bigger problem

Computers have invaded every area of our work – factories, shops and offices. Statistics have evolved to reflect this. The information technology industry is itself growing fast. Surprisingly however, there is as yet little evidence at an aggregate, economy-wide, level of any significant improvement in productivity in the other sectors that use information technology. Some analysts argue the benefits are simply slow to materialise.

Knowledge-based society

Increasingly vital to a company's success is the technology and knowledge it possesses, whether protected by patents or not. The recent revision of the UN and EU systems of national accounts broadened the concept of investments to include a range of intangible assets such as computer software, mineral exploration, or artistic and literary originals.

Another key asset is the knowledge embodied in the labour force. Employment statistics can break down the workforce by various levels of education and experience. Within the national accounts, studies are underway to improve our measures of the output of the education system. Ultimately however, it remains inherently extremely difficult for statisticians and for company accountants, to identify and to value additions to the stock of useful knowledge.

The observations above attempt to put some aspects of the New Economy into a broader, macro-economic, perspective. They should not however be construed as a recipe for complacency. Statisticians and national accountants are monitoring this issue closely to ensure our statistics remain reliable and relevant. ■

PHOTIS NANOPOULOS, director at Eurostat, responsible for 'statistical information, research and data analysis, technical cooperation with Phare and Tacis countries', explains to *Sigma*'s GLEN CAMPBELL what a huge challenge the New Economy poses for statisticians. How should we go forward on this e-challenge? New methods, closer collaboration, learning from others...? He sheds light on some of the surest paths to follow ahead.

New Economy: Back to the future

Mr Nanopoulos opens our interview by setting the scene: "The New Economy (NE) has emerged from transformations sweeping across the whole of society. The first is technology: it has allowed new ways of working, communication and interaction among people. The second is the spread of democracy, mostly stable International Relations, investment attraction, strong commercial interactions, and so on.

"Finally, the third is the consequence of the second: the move towards the new order of commercial relations with the creation of the GATT and the WTO. This allows new interactions among people and the new technologies are at the centre. The essence of all these is that we are dealing with a digital economy – a 'Pythagorean' economy in which everything can be expressed by numbers."

What does all this mean for statisticians?

"It is obvious that for statisticians, this is a huge challenge. Everything – every single activity and measurable variable – takes a small but significant 'e' at the front.

"We are clearly entering a new age of statistics. One only has to glance at the benchmark indicators in the eEurope Action Plan (*see article on page 33*). It includes the speed of connections between national research networks, the level of awareness of public Internet access, among others."

Changing approaches

He continues, "today's society – the New Economy – is not just about new products, but new economic patterns too. This is why the classical 'production function' and 'demand-offer' approaches need to give way to 'flexibility and adaptability' and 'innovative solutions versus process and product quality'.

"I would say that as far as information society products are concerned, nobody is asking for the same quality as in the case of a car or a watch. The issue here is not the product's quality per se, but how quickly they are produced. For example, if Windows crashes, people will complain, but not in the same way as if a Volkswagen breaks down. Why? Because Windows' users are more interested in the service offered by the program rather than its robustness."

That's not all, Nanopoulos leans forward and says emphatically, "we should also change the way we are producing statistics. For this, we have to abandon the old way of doing this through surveys and registers and go further towards putting together heterogeneous information in order to build as homogeneous data as possible. This is a new skill that, in fact, we could call a science itself."

Managing diverse data

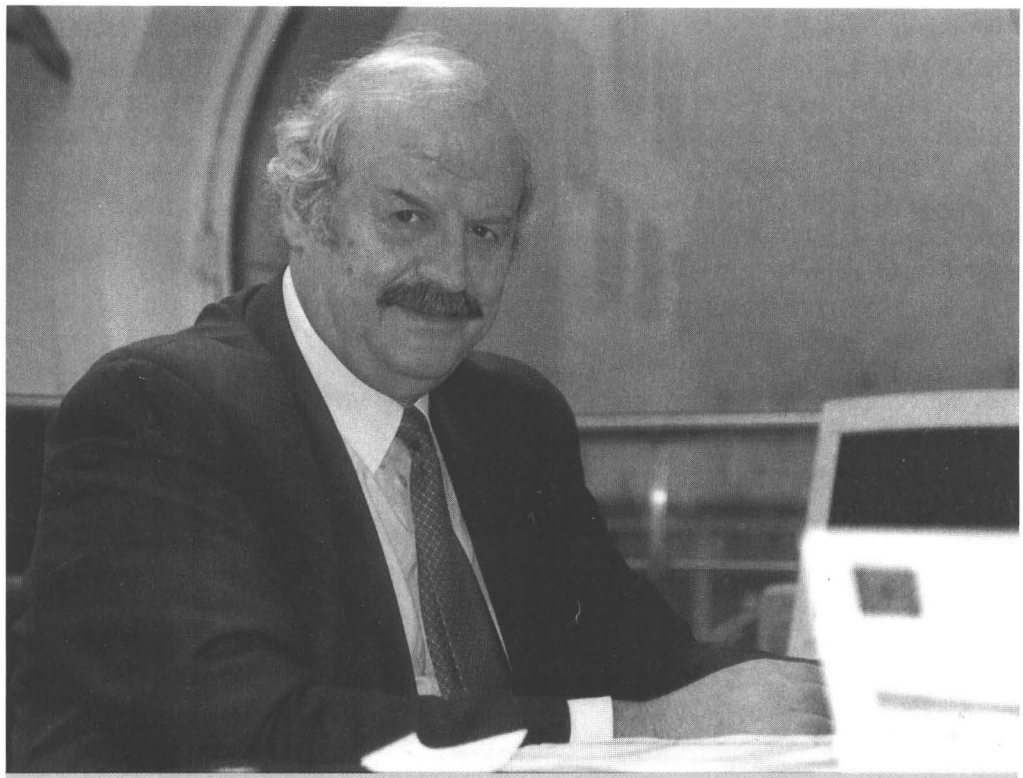
He adds: "one or two decades ago, there was only about 10% of the data we now have today, but there has been a proliferation of different sources and types. The recent inventories of data show this plethora very clearly: private companies, statistical observatories, associations and other international organisations. All this is yet another manifestation of the information society.

"But this is becoming a chaotic situation and poses the problem of harmonisa-

tion – one that we will face more and more in the future. Given this challenge, we are developing methods to have the ESS well established and seeing how non-survey data can be screened in order to use data, such as those from consortia research projects, which are not 100% stable. And this is a very dynamic area of what I would call 'methodological statistics'.

"We need to operate in two ways. First, we should incorporate the results of the Research and Technology programmes in our systems. We have to bring in all types of results we can obtain on the impact of the information society: lifestyles, societal changes, working and purchasing patterns and so on.

"What's more, our whole system has to become more electronic in our processes and ways of working. There has been a proliferation of data collection, well, why not have a proliferation of data availability too! We can really increase our productivity if we incorporate new technologies and make data available, for example, on the Internet."



Photis Nanopoulos was born in 1943 in Crestena, Olympia, Greece. His multi-domain fields of study and work accounts for his way of looking at statistics today, some major ideas of which have been sketched out here. First an aircraft engineer, then a mathematician in France, he completed doctoral studies in information theories, became a statistician at Berkeley, lectured on statistics in France and Greece to economists and students of other disciplines.

He came to Eurostat in 1983 when he became Director of 'Business Statistics'. After 14 years there, he migrated to Directorate A (statistical information, research and data analysis, technical cooperation with Phare and Tacis countries) in 1997 as Director.

Apart from the Information Society, working with the Candidate Countries to help them adapt their statistical systems is another of his strong interests and one in which he can play a dynamic role in Directorate A – his experience of his own country 's accession being indispensable.

Towards a new approach

How do you approach measuring the New Economy?

"The classical approach of official statistics – defining a sector and then the socio-economic variables, applied in that sector – will not work effectively in the NE. This is because the NE is characterised by a rapid change in the products, the processes and organisation of firms. The changes are so fast that a statistical system following the classical approach, by the time it is set up, becomes obsolete.

"We only need to look at the postal and telecommunications sectors and how often they have introduced new products and services, as well as other sectors such as television and electricity offering complementary services.

"This illustrates the variety of things we can observe changes – prices, shifts, how much households are incorporating new tools, how many products are sold, e-commerce – both business to business (B2B) and business to consumer (B2C).

"We have already moved some way in measuring these, but it takes time and it cannot really be said yet that we are producing data – although there is development on business and telecommunications statistics *(see article on p 16)* and through consortia."

Easier data collection

Given today's technical age with increasingly sophisticated computer programs, will data collection become easier for statisticians?

"Of course! Data collection has never had it so good – the computerised age opens up countless data sources and accelerates

collection. There are numerous examples of systems and computer programs that facilitate data collection: XML (Extensible Markup Language), computer-aided interviews, software-produced questionnaires, and so on. Also, we should note that systems will be able to communicate with ease and independently of human involvement. It is just a matter of designing the best automatic system.

"But we should keep two things in mind", Nanopoulos highlights. "The first challenge concerns data comparability. Data are built in different cultural environments and languages so we need some convergence to make the concepts more comparable.

"Second, access rights will be another challenge in terms of the legal questions related to accessing this information such as copyright and confidentiality. We will have to handle these questions very rapidly if we want to avoid information blockages, ensure data protection rights etc.

"The challenge for us is to work on ex-ante harmonisation where data are compiled on the basis of common methodologies and definitions." This contrasts with ex-post harmonisation where data are collected according to the different systems of Member States."

Mr Nanopoulos asks me whether I am British and drive a car, and goes on to say: "If we want motorways giving access all over Europe, we need to answer the questions, are the cars compatible, are road signs understandable to everyone, do we drive on the same side... ?"

Converging classifications

A big issue at the moment is classifications. Linked to its dominance in the Information Society, the United States has been a leader in this domain's statistics and classifications. Therefore, if the EU's ambition is to become an equal player in the global market place, it should try to play the same ball game.

This is why Eurostat is working with North America to achieve convergence between the European NACE (Statistical Classification of Economic Activities in the European Community) and the North American NAICS (North American Industrial Classification System). I asked Mr Nanopoulos to shed some light.

"Both users and producers in this statistical area are pressing for rapid changes in classifications since the NE is introducing a multitude of products and services that do not yet have an appropriate home in terms of classifications. And despite the fact that the next chance to update NACE, the European classification system, will not be until 2007, we can still start converging now in anticipation.

"We need to shift from the 'production function' and 'demand-offer' approaches to those of 'flexibility and adaptability' and 'innovative solutions versus process and product quality'. This should be in our mind when we are revising classifications."

Nanopolous continues, "classifications must follow changes. If we ask ourselves how often we should have updated NACE to have a modern classification system capable of today's requirements, it would have had to have been about... every two years.

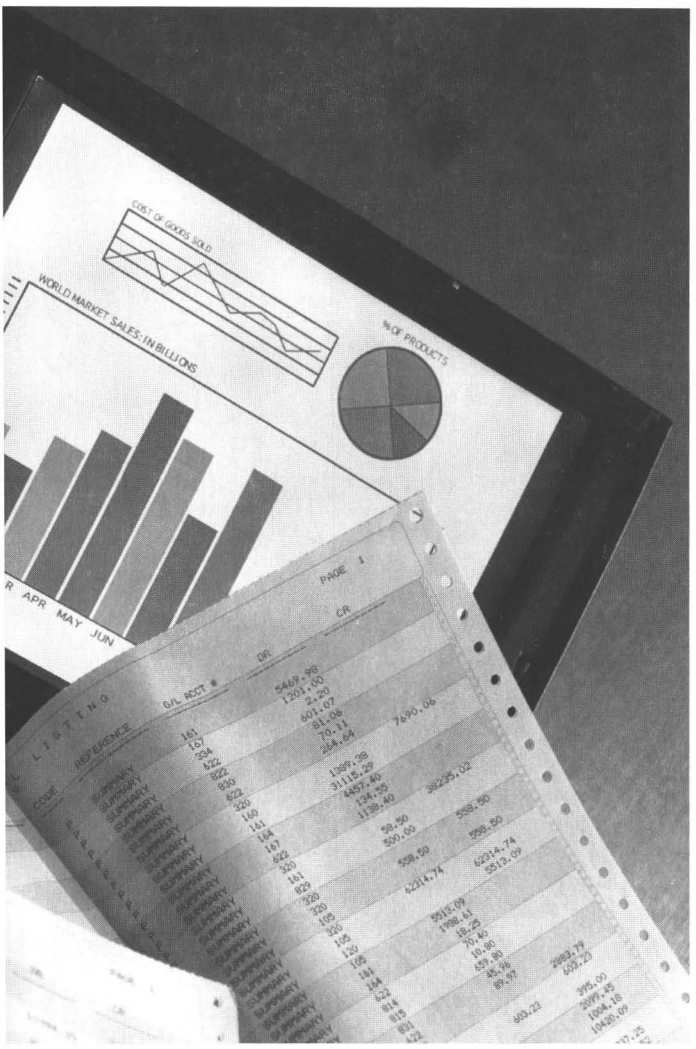
"For the NE, NACE still bundles together computer services and household services in the same basket so that there is insufficient discrimination. But we need it – and fast. Of course, we should not overlook the problem that by changing classifications we risk losing comparability within time series, so there is an obvious trade-off here to be considered.

"I understand the needs of national accounts and macroeconomic approaches – they need stable classifications in order to establish long series. But, at the same time, what we need is to open our ways of thinking and a new culture for observing the NE. We should update classifications by using a flexible bottom-up approach. With the right means we can build very swiftly the necessary system to do more than just follow developments – but actually anticipate them.

"The North American classification system is clearly much more developed compared to our NACE. The breakdowns go into the finer details to reflect the realities of the NE much better. However, while we can learn a lot from NAICS, it is not without its own problems. Like us, the Americans could also change their way of thinking in terms of the dominant role played by national accounts in official statistics and how it influences the way classifications are made.


"We can really increase our productivity if we incorporate new technologies and, for example, make data available on the Internet".

"As for the nuts and bolts, we already have provisional manuscripts which help steer discussion in the working groups. We intend to add additional classes concerning, for instance, the wholesale of computers. In addition, explanatory notes will be expanded for items such as Internet access providers."



Research projects are key

One of Directorate A's major axes of work is science and technology statistics with research projects for measuring the NE. And they are in the middle of defining and developing indicators that will help both policy-makers and business to know what is happening. These indicators will, after screening, be ready for incorporation into a more regular production system.

The NE is, in fact, a research topic in the Fifth Framework Programme and there are a number of projects that it finances from which results are expected over the next two years.

...SINE

The initiative on Statistical Indicators for the New Economy (SINE) is playing a fundamental role, isn't it?

"Yes. We also want to encourage other research on R&D topics especially through the SINE initiative in association with the Commission's eEurope Action Plan. SINE, a think-tank, brings together NSIs, enterprises, associations and other organisations in consortia to discuss the scope and framework for NE statistics.

"Today, we have several major projects, such as Newkind (New indicators for the technology-based economy) and EICSTES (European Indicators, Cyberspace and the Science Technology Economy System) – and the number is growing. Their results will then feed into the various domains of the ESS to produce concrete indicators. Results are expected in one year's time and should help complete the puzzle and perhaps bring new ideas.

"This approach – using consortia – is faster and very promising but it cannot replace the regular statistical system; it can only help pave some of the way."

R&D statistics are providing information on the NE and on the significant role of R&D in the information society, aren't they?

"Certainly. Let's not forget that R&D is at the basis of efforts to boost the economy. We are trying to reorient existing indicators from their original classifications to today's situation.

"They cover several aspects in the area such as expenditure, personnel and other resources. Patents are another area in terms of measuring the output of research. There is also the Community Innovation Survey (CIS), carried out every three years, but which we will accelerate – to see how innovation is incorporated in European business.

"These 'innovation indicators', 'patent indicators' and 'science and technology indicators' complement the business and social areas and thus build up a global set of NE indicators."

Democracy... and photography?

Mr Nanopoulos highlights statistics' place in society: "we cannot have democracy without statistics. The primary objective of national and European statistical systems is to provide all the data necessary for ensuring democracy and improving society in all domains – economy, science, and so on. In short, we are the soldiers of democracy."

Pointing at some photographs on the wall, Mr Nanopoulos shares his view of what the statistican's role should be: "I liken our task to that of photographers: choosing the right film to give the best possible results given the conditions available; measuring without bias, without misleading the user; covering the most important issues..."

The interview brought one thing home to me: New Economy statistics are on the right path, but the European Statistical System still needs some fine-tuning. Borrowing the closing words of Mr Nanopoulos, "we are entering a period of profound transformation and in order to make it work we have to work very hard as statisticians to accompany it on the path before us." This sums up the heart of the e-challenge for Europe's statistics today! ■

Eurostat's Business Statistics Directorate is somewhat of an architect in laying the foundations for sound business statistics for the New Economy. But then it has to be. Demand is high, many statistics already exist and some need to be created. *Sigma*'s GLEN CAMPBELL spoke to **PEDRO DIAZ MUÑOZ**, Head of Eurostat's Business Statistics Directorate, to find just how much the New Economy will be new for business statistics.

The bricks and mortar of NE statistics

The term 'New Economy' (NE) covers largely what we mean by the Information Society, the backbone: information technology, communications and digital content industries and both the use and impact of their products and services.

In addition, the emerging Information Society has a strong influence on the development of other phenomena related to the New Economy: globalisation, worldwide competition, the development of financial markets, innovation, new ways of managing organisations and so on.

When we look at today's statistical situation in respect of data availability and methodology, it's early days yet for New Economy statistics, as a whole, but the path ahead is starting to be paved and data are taking root.

At the moment, the Business Statistics Directorate is working closely with Member States to define the scope of their activity to cover the different phenomena – the most important being the Information Society and globalisation – as well as obtain data already available, launch new data collections on a voluntary basis and establish harmonised and stable, core data sets.

Policy initiatives

Which policy developments have been, and will be, significant?

"There are several relevant policy developments, but most recently it has been the events in the wake of the Lisbon European Council in March 2000 where Europe's leaders set clear priorities and agreed to ambitious commitments on the Information Society and the New Economy. All these call for an improvement in data coverage.

"Indeed, demand for business statistics has been boosted in the areas of information and communication technology (ICT), research and innovation, business services, electronic commerce, demography of enterprises and the audiovisual sector.

"It is also worth mentioning the *e*Europe Action Plan and the related list of statistical indicators for benchmarking Member States' evolution according to the Plan's objectives regarding the Information Society. A first set of indicators was set up at the end of 2000 but the list of indicators will develop further in the future. Eurostat has assessed data availability within the ESS and will collect on a regular basis those indicators that are available from Member States.

"At the Stockholm European Council in March this year (*which will have taken place before this issue of Sigma is published*), we will have indicators for economic and structural reform, innovation and research. More generally speaking, Stockholm will serve as a valuable guide on the further development of the policies linked to the Information Society and the statistics needed for those policies."

Spillover effects of ICT

The spillover of ICT on business growth, such as cost savings and efficiency gains via the spread of Internet and the development of e-commerce are indirect and complex.

How do you measure the spillover effects of ICT on business growth?

Pedro Diaz Muñoz has been active in the Information Society throughout his career. After obtaining an initial degree in mathematics, he went on to obtain a further degree in statistics from Edinburgh University and economics from Madrid University, specialising in ICT.

His work in the private sector, both in Spain and the US and at the OECD in Paris, has been closely related to Information Technology. Before coming to Eurostat, he worked as deputy director in the area of ICT and dissemination at INE, Spain. In his own words, "I have been on both sides – I was a producer in ICT and now I am involved in data on ICT production!"

Among his interests in the area of the Information Society, he became particularly involved with its impacts on the economy. It was then no surprise to learn that he was more than pleased to accept the opportunity in 1997 to steer Eurostat's Business Statistics Directorate through the New Economy.

"In Eurostat we are currently preparing the collection for data on the readiness for and the usage of ICT in enterprises. 'Readiness indicators' show the penetration of ICT equipment in enterprises or households. In contrast, 'usage indicators' cover the intensity of the use of ICT in businesses, organisations and society in general.

"Measuring the effect of ICT, however, needs other types of data, those called 'impact indicators'. This is best achieved in the framework of national accounts. If we want to link IT usage and company performance, econometric models are also necessary."

What is the 'productivity paradox'?

"In the 80s and early 90s, there was no evidence in statistical data of an increase in economic productivity due to the impact of ICT – the contrary of what was believed (the so-called 'Solow paradox', named after the American economist Robert Solow)! There were several reasons for this. Firstly, it took time to produce productivity gains. Secondly, productivity gains often occurred in areas that were difficult to measure such as intangible assets, improvement in organisations, and so on.

"Finally, the output of services is more complicated to measure, compared with that of goods. With the increasing importance of services, this becomes more of a problem. Nevertheless, in recent years productivity gains are being measured, giving evidence of the positive impact of ICT on productivity growth."

A heterogeneous data maze?

A major challenge is coordinating the wide range of data sources available. Within Eurostat, data sources touch most of the production domains since Information Society statistics go beyond business statistics. And this teamwork is likely to strengthen especially as statistics and the European Statistical System (ESS) gradually cover the entirety of the New Economy.

What statistical indicators are available?

"There are a number of statistical indicators on the Information Society already available from business statistics sources. The collection Structural Business Statistics (SBS) provides structural data on turnover, number of enterprises, employment, value added and a number of economic variables on the Information and Communication Technology sectors both in manufacturing and services activities.

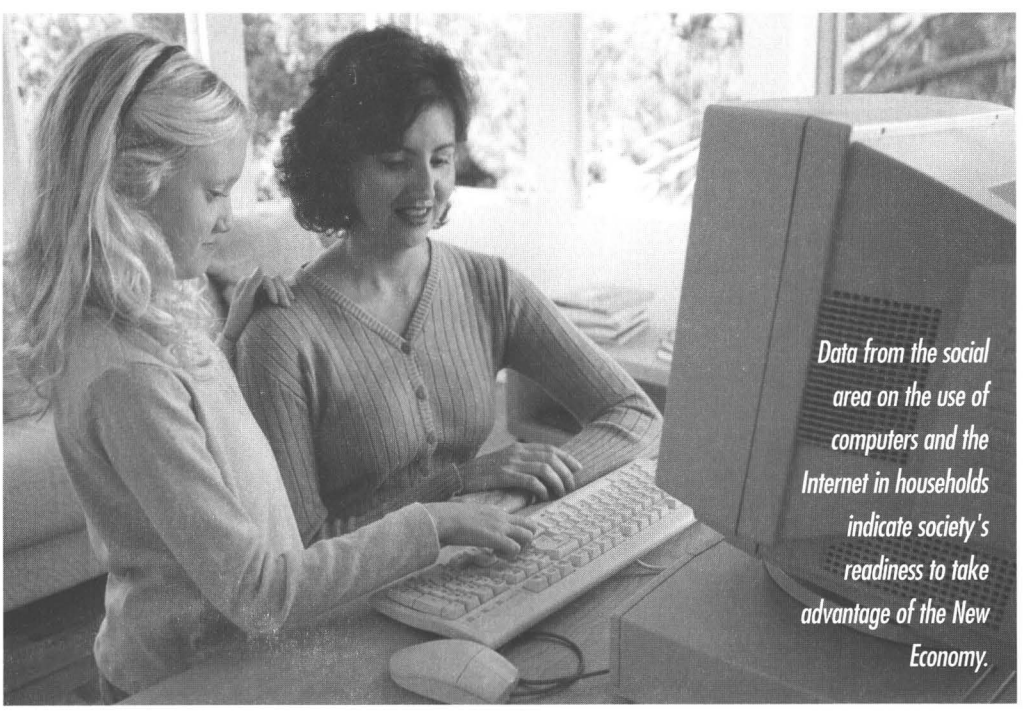
"In addition to business indicators, we have functional data. We have detailed statistics on the audio-visual sector while another collection carries data more specifically on telecommunications. In addition, there are data on ICT products both on trade (Comext) and production (Prodcom).

"But there are also indicators that come from the social area to help tell us about society's readiness to take advantage of the NE: education indicators; data on the labour force; use of computers, mobile communications and Internet in households, among others.

"Also, the e-commerce initiative is important for collecting data on ICT usage in enterprises. The Member States are currently preparing a Community pilot survey on e-commerce that should produce first results this summer.

"At the moment, we are expanding the detail collected for the areas particularly concerned by these initiatives, such as business services – where a specific investigation on computer services is currently being launched looking, in particular, at breakdowns by product and client – e-commerce, telecommunications and audio-visual statistics. In addition, we are in the process of developing methodologies to track globalisation and are looking at updating classifications.

"We also use international and private sources to both complement existing data sets and provide comparison: the OECD, the International Telecommunication Union (ITU), and the Commission-supported European Information Technology Observatory (EITO) are some of them. Some Commission services also launch their own data collections to fill specific information gaps, which in many



Data from the social area on the use of computers and the Internet in households indicate society's readiness to take advantage of the New Economy.

Statistical Sources for the Information Society

PUBLIC SOURCES

Eurostat/ESS:
There are several regular harmonised data collection activities based on primary surveys within the European Statistical System. Data are available in the Eurostat Newcronos database:

- Structural Business Statistics (SBS)
- Production Statistics (PRODCOM)
- External Trade Statistics (COMEXT)
- Community Innovation Survey (CIS)
- European Community Household Panel (ECHP)
- Continuous Vocational Training Survey (CVTS)

It is planned to add further Information Society related variables in the tool that will replace the ECHP from 2003 (EU-SILC), in the Labour Force Survey (LFS) and the Household Budget Survey (HBS).

Collection by Eurostat via questionnaires of data available at Member state level:

- Telecommunications questionnaire (COINS database)
- Audiovisual questionnaire (AUVIS)

New data collection activities carried out in 2001:

- E-commerce surveys (23 variables)
- Information Society questionnaire (ca. 100 variables)

Other services of the European Commission:
DG 'Information Society'
DG 'Education and Culture'
DG 'Enterprise'

International organisations:
OECD (www.oecd.org)
International Telecommunication Union (ITU, www.itu.int)

PRIVATE SOURCES

These are mostly specialised sources covering specific indicators.

European Information Technology Observatory (**EITO**, www.eito.com)

NUA: The Dublin based company collects information from various market studies on Internet usage and estimates the worldwide number of Internet users. The data collected are available on the Web (www.nua.ie).

Réseaux IP Européens, Network Coordination Centre (**RIPE NCC**):
RIPE carries out monthly host counts by top-level domain for Europe. The results are available on the RIPE website (www.ripe.net). The ITU uses RIPE host count data in its statistics.

Internet Software Consortium (**ISC**): ISC carries out twice a year an Internet domain survey. Results are available on the ISC homepage (www.isc.org). The OECD uses ISC host count data in its statistics.

Statistical data (including forecasts and analysis) on certain aspects of the ICT market are furthermore produced by various market research companies. In some cases they also provide key statistical results on their homepages. Examples in the field of e-commerce are Durlacher (www.durlacher.com downloadable m-commerce report) and Forrester Research (www.forrester.com, providing projections on worldwide Internet commerce), IDATE (www.idate.fr) for telecommunications and IDC (www.idc.com) for the ICT hardware market, to name just a few.

cases will be replaced in the future by data collected within the European Statistical System. Examples of this are the Eurobarometer surveys launched by the Commission's Directorate General 'Information Society'.

"International collaboration provides us with more than just data. The OECD has contributed a great deal on the methodological front and it has served as a forum for the development of an internationally agreed definition of e-commerce. It has been reflecting on the Information Society for years and the results of its projects have represented important input for our work. In addition, the Voorburg Group is another significant player especially at the more practical level." (*see article on page 23*)

What are the problems of using the Internet's own data potential?

"We face particularly the problems of 'definition' and 'population'. The simple example of Internet site user records illustrates this problem. Today, more and more enterprises profile users' 'hits' in their site – the pages they consult, the frequency and so on – to help them improve their marketing strategies.

"The problem is that with Web pages becoming more sophisticated, with links to other pages, there are problems of definition of what a Web page and a 'hit' are. In addition, with many addresses having non-geographic names such as 'com', it can be difficult locating the user's country of origin.

"The other example of electronic commerce transactions also presents the problem of definition. For example, although we can assume that the transaction of a client who orders and pays for goods over the Internet falls under electronic commerce, what about the Internet user who consults a catalogue on a site, notes the order number but pays by cheque in the post?

"Conceptual issues of this type need to be resolved if we want to consider the Internet as a promising and reliable data source."

What are the benefits and handicaps posed by tapping Information Society statistics from such a myriad of different sources?

"The benefits of this system are that they fill gaps in the ESS's data sets, they are characterised by freshness, timeliness and ease of collection.

"For subjects of a wide and continuous interest and which need both large and regular surveys, official sources are an efficient means of obtaining the data, and if they do not exist they should be developed. But for newer topics,

including many areas of the Information Society, other sources have to be found since large surveys and regular official statistics – the European Statistical System – do not provide the data we need. For example, private sources can provide Internet host counts... They can also offer the required expertise to help official statistics in the analysis and interpretation of results.

"But these sources outside the ESS pose a number of problems too. Methodology varies widely, there can be a lack of methodological information provided, data may be incompatible with the ESS's data sets, some sources are unstable and time series are often not available. Furthermore, they can be biased because they have been collected with a particular objective in mind such as marketing. Finally, because of the fact that data are private and not in the public domain it can be difficult accessing and exploiting them.

"Let's take, for instance, data available on the number of Internet users. Here, there are numerous sources and consequently various results. For the case of Spain, according to Eurobarometer, by November 2000, there were 6.4 million Spanish Internauts, whereas the figure produced by a private consultancy, recently released in the Spanish press, gave 4.5 million for the same month. This gives a difference of some two million!

"Given this situation, we have arrived at a point where many of our important data sources exist outside the European Statistical System and their reliability and level of harmonisation is not clear. Since different sources can produce different data, this can be very confusing for users who try to decipher which is the best. A prime example of this is e-commerce – data has proliferated from private sources and none of them are the same!

"And when it comes to forecasting and estimates, these data are often not presented as such, making users think that fresh results exist and raising their expectation level of official sources – much to our detriment – since we are unable to satisfy them.

"Of course, in the interest of obtaining the best possible quality data, we try to rank sources according to their quality of harmonisation and methodology, ranging from our top goal of harmonised official sources (harmonised Member States' data) through to official/non-harmonised (international pilot projects, national data, data from other international organisations) to non-harmonised private sources."

Laying the path ahead

How are you approaching these problems?

"In terms of data coverage, we need to focus our energies on data not yet covered by existing classifications such as NACE. Sometimes it is very difficult to measure phenomena of this type because they rely on products and we do not know exactly which products should fall under an ICT classification.

"For example, as regards medical consultations on the Internet, some countries consider this as an ICT product, whereas others view it as a medical service; if there is no agreement on classification, the comparability of data will be affected. Similar 'borderline' cases are becoming more frequent with ICT growth.

"To help us here we are working to align the NACE with the US' NAICS (North American Industrial Classification System) classification to construct a coherent and solid framework to cover the New Economy.

"Concerning the collection of statistical data needed, the use of existing datasets can help to improve in the short term the completeness and timeliness of European data sets. But this will not be enough. We will have to develop other projects for data collection, which in some cases requires new approaches and innovative tools. Indeed, this also gives us all an opportunity to make the ESS more flexible.

"We are reflecting in two directions. First, we are looking at launching ad hoc surveys necessary for certain areas, which would be able to respond quickly to changing needs and be entirely within the ESS. Second, we are reflecting on the potential of using other sources (private, consortia ...) under the ESS's supervision while applying the best quality standards – a question more of teamwork between all the actors – private or official.

"Charting out our work in the years to come, we have identified a number of priorities particularly for the short and medium terms. For the short term, we are doing an inventory of different data available on the Information Society in the Member States and we are collecting the non-harmonised data available and integrating them into a European database. We are also launching a pilot project on electronic commerce with as much harmonisation as possible.

"In the medium term, we will incorporate the results of the e-commerce pilot study data in a stable collection. We are also working with other Eurostat Directorates bringing together all those areas relevant for the Information Society. For example, we are working with our colleagues in employment statistics for a proposal to measure teleworking in the Labour Force Survey (LFS). There are also similar initiatives for the integration of Information Society aspects into other Eurostat data collection activities (household surveys, family budget surveys, transport statistics and so on)."

In conclusion, the building blocks are being put into place. But a building needs solid foundations and the right bricks with the teamwork and expertise of surveyors, architects... This is exactly what is happening for the New Economy now. A variety of materials are being used to make it stand solidly: the source for business statistics in tomorrow's Europe. ■

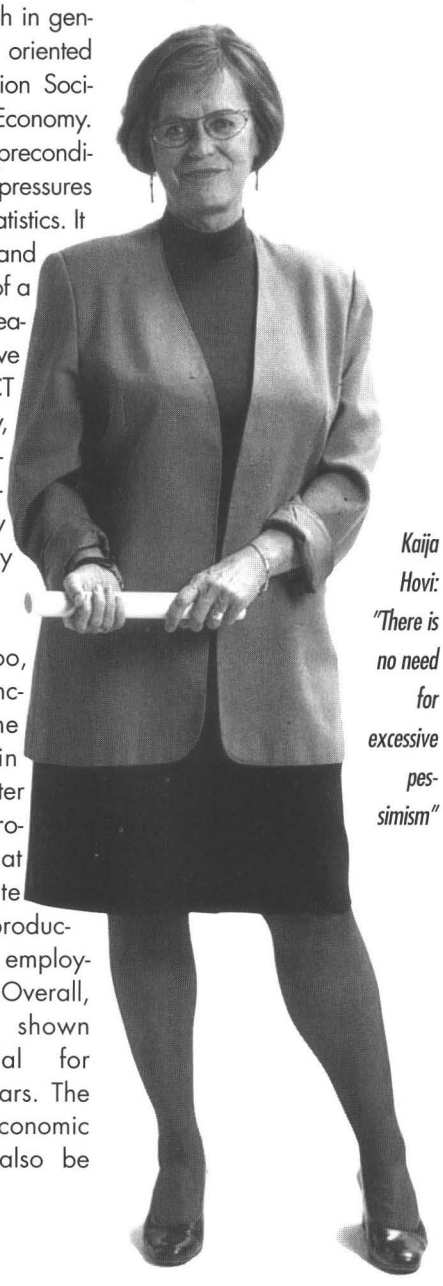
Finland is considered fairly advanced in comparison to other European countries with regards to the New Economy. Not only in terms of economic developments, but also in terms of the statistical measurement of the new phenomenon. **KAIJA HOVI**, Head of Unit 'Business Structures' at Statistics Finland, answered *Sigma*'s questions.

Europe's New Economy PIONEER

Statistics Finland is fairly advanced when it comes to statistics about the so-called New Economy.

This has much to do with the social and economic conditions in Finland, which in general are very much oriented towards the Information Society and the New Economy. This has created the preconditions for, as well as pressures to develop relevant statistics. It is fair to say that Finland has been something of a New Economy guinea-pig in Europe. We have a highly advanced ICT sector in the country, and information and-communication technology is widely applied in practically all industries.

More generally, too, there are many distinctive features of the New Economy in Finland. In the latter half of the 1990s productivity increased at an exceptional rate both in industries producing and in industries employing IC technology. Overall, the economy has shown increased potential for growth in recent years. The rapid advance of economic globalisation may also be associated with the New Economy. The signs of the New Economy are likewise seen, for instance, in the revival of entrepreneurship and in changing business and production structures.



Kaija Hovi: "There is no need for excessive pessimism"

New services based on high technology have appeared on the market, etc.

The New Economy is also reflected slightly negatively in the rapid regional concentration of production and in the growth of income differentials, for instance. Finland has also experienced a fair share of the worst excesses of the speculative economy.

Political demand

Could you describe for us the work carried out in this field...

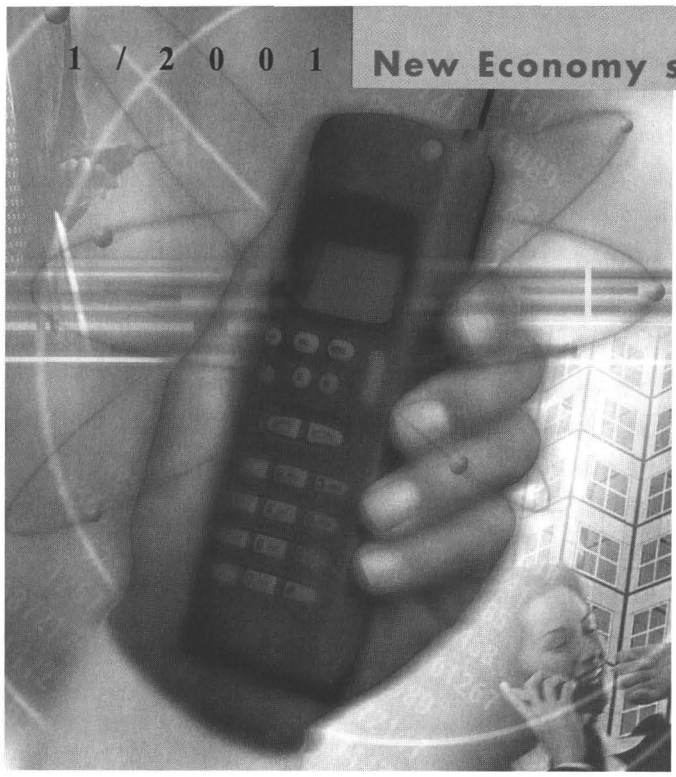
Systematic work to monitor the penetration of information technology, its potential applications, employment in the ICT sector and its impact on the economy was started in the mid-1990s, at around the same time as the Finnish Government committed itself to an Information Society programme.

Keen to monitor progress, the government charged Statistics Finland with the responsibility to provide reports at regular intervals and to conduct occasional studies on the programme's impact on society. Examples are provided by the series of statistical reports under the heading, 'On the Road to the Finnish Information Society' and by the research project 'Finns and the Future Information Society'. Phenomena related to the Information Society are also studied on a regional basis.

All this cuts into the very essence of what the New Economy is about, although the object in this instance does have more intangible aspects and the intangible economy cannot be described as an area in which we have very much experience. On the other hand, Statistics Finland did study intangible business investments as early as the 1980s. We now see continuously increasing demand for this kind of work.

... and also give us your definition of the New Economy?

It took quite a while to arrive at a definition of the Information Society and I very much suspect that the New Economy will be even harder to define. Statistical agencies will quite simply have to start describing these new phenomena, even if it is not possible from the outset to provide exhaustive and satisfactory definitions.



Describing an undefined phenomenon

What experiences and difficulties are you encountering in collecting statistical information about the New Economy?

It is always difficult to describe a phenomenon for which you have no definition. Although we don't have quantitative measures, we do however have qualitative indicators that allow us at least to see where we are heading. Even here there is the problem of collecting reliable data – not on account of the method of measurement but because there is no established reference framework and because there are no universally accepted concepts. A good example is provided by e-commerce. The OECD is currently working to develop a common framework and to clarify the concepts. It is important, of course, that the concepts are clear enough so that data providers, i.e. businesses and households, understand what the questions mean and, on the other hand, that they monitor their own economic activities so that the data can be reliably estimated.

Statistical agencies in the Nordic countries have been working closely for years to harmonise research designs, definitions and methods in business surveys addressing the penetration of information technology, its intensity, motives and obstacles. These comparative studies have revealed sometimes quite surprising differences between statistical cultures in the Nordic countries in spite of their geographical proximity and common traditions. But there has always been progress.

The challenges thrown up by the New Economy concern economic statistics more generally, especially price indices and the calculation of production and production input volumes. It has even been argued that in Europe, quality problems with productivity indicators and with the basic underlying statistics prevent the productivity effects of IC technology from showing up in the statistics.

The biggest difficulties in the measurement of technology effects probably lie in qualitative changes and in price indices. The quality of products and services changes fast by virtue of IC technology; the same goes for so-called new services that are based on new technology.

A complex interplay

ICT production figures, ICT investment and spillover effects are, according to the OECD chief economist, the three main aspects of the New Economy. Do you share this view?

These may well be key areas of the New Economy. If we consider the background factors, then the New Economy is probably the outcome of technology and globalisation and their complex interplay. The phenomenon appears to be even more complex if it is examined through the New Economy or simply through the effects of IC technology, for instance.

However, I would be inclined to say that the foundation of the New Economy lies in the immaterial economy, for even business capital consists increasingly of immaterial capital. Human capital and its various components are certainly the driving force behind ICT as well. Expectations that people have about listed companies are pinned on future value changes, on the launch of new innovations in the market and on the maintenance of market positions. As far as human capital is concerned, to an ever growing extent commitment to the company is encouraged by means of incentive stock option programmes or other special awarding systems. This is no doubt where the driving force ultimately lies.

What are your plans for the future in this field?

In the Information Society, there is a special demand for highly-trained staff. It is important to monitor the movement of this group of people between businesses and also between the Nordic countries, for instance. Improving our descriptions of R&D and innovation studies is also on the agenda. Another significant addition to the study of the New Economy will be to support the use of company-based micro data that are needed in the new line of economic research and to process business and personal datasets, for instance in Finland, as a pilot survey.

We also intend to be involved in the description of intellectual capital, although this project is still in its infancy. Finally, the development of a price index system for services must also be seen as an integral part of the effort to improve descriptions of the New Economy.

Clear role for official statistics

Are official statistics the correct addressee for statistical information needs about the New Economy?

Yes, absolutely. We have had a similar problem with statistics on the Information Society. Much of these statistics are produced outside official statistics, yet the sta-

tistical agencies do have a clear role in bringing together and organising the information from all the various sources as well as in filling the gaps. We can see a similar trend in the statistical description of the New Economy. There are plenty of people around who are there just to skim the cream off or to get some publicity, and the quality of information is a growing problem for companies' Business Intelligence systems, for instance.

Another trend is that customers expect to have access to coherent and consistent information. There is a growing demand for integrated statistical descriptions covering different areas, and this is clearly what statistical agencies are about.

Having said that, statistical agencies are not the only possible producers of information, and they no longer have a monopoly over information production – fortunately. There are certain areas where official statistics do not provide the standard of service that users would require. With the modern global economy, there is little use for statistics on last month's or last year's performance. But then we do get inquiries concerning the background of successes or failures.

In international classifications New Economy phenomena are often slotted under the residual category of 'other similar activities', i.e. at the time these classifications were designed no one knew they even existed. With the exception of occasional pilot studies, new service industries do not appear in the classifications of official statistics. This is one area in which other statistics producers could make a significant contribution.

The main strength of statistical production lies in monitoring phenomena that remain with us for at least a certain period of time; those that come and go in rapid succession are hard to fit into the framework. On the other hand, it is unlikely anyone will be asking for a separate survey of the new phenomenon of e-commerce in ten years' time – after all no one today wants to know about the use of faxes or phones in business.

No need for pessimism

How do you see statistics on the New Economy developing on an international scale?

Much depends on what is going to happen to the phenomenon itself. One thing we can safely say is that the classifications and the terminology are bound to change. In 20 years' time we will no longer be referring to the New Economy at least in the same sense of an entity as we are today. One may also ask what will be the phase that follows the New Economy.

As far as statistical experts are concerned there is no need for any excessive pessimism, however. If we look at what has been achieved in short-term statistics during the past few years – albeit under heavy external demand – the development is in fact quite positive. We will probably now be seeing mounting external pressure to develop structural statistics (and New Economy statistics) as well. I am sure that statistical agencies, too, will prove flexible enough to adapt to changes in demand – even though a certain measure of caution might have beneficial impacts on this situation with respect to the overall quality of statistics.

In the United States they have been quicker to recognise the problems involved in price and volume indices. But even in Europe we are now moving ahead on quite a broad front. At Eurostat, work is currently underway in a working group on price and volume methods to develop a productivity calculation framework, and it will soon be publishing a handbook on the methods of price/volume statistics. The OECD, for its part, is working both on a productivity manual and on a manual for correcting the price indices of ICT products for quality.

And within the EU, especially against the background of the eEurope initiative?

The *e*Europe programme was started up in an exceptionally short space of time and statistical agencies were not equipped in the best possible way to monitor programme implementation. In the EU context even the best of surveys by one single Member State will not suffice. The *e*Europe programme opens up new opportunities in a changing society and lays down the basic framework for both citizens and businesses. The programme's indicators will allow us to monitor this transitional stage, at least in part. As for the requirements of the New Economy, I don't think that instructions or recommendations on how it should be described will be forthcoming quite yet. Very often new phenomena are integrated into statistics after preliminary tests; I would say that this is about the right time to get these tests started. We need to get the framework and the methods sorted out before the fieldwork gets underway.

Still relevant

Which areas of the New Economy should, in your opinion, be developed further on a European scale?

In 1997, the UN Statistical Commission published a report entitled 'Critical Problems in Economic Statistics'. The development priorities listed in that document are still relevant with respect to New Economy statistics as well. It is essential that work be continued to develop definitions, standards and statistical classifications. Price and volume indices must also be improved.

Solutions need to be found to the statistical problems presented by multinational corporations and globalisation. Steps are also needed to develop the measurement of ICT investments and human capital, and the same goes generally and especially for service industries. Reliable micro data are necessary for the analysis of productivity or the New Economy. The harmonisation of business statistics needs to be speeded up and structural statistics must generally be made more relevant and up-to-date. ■

PATRICE ROUSSEL is a regular contributor to the Voorburg Group on services statistics. As "Mr Services" at INSEE, the French National Statistical Office, he offers *Sigma*'s FRANÇOIS VERMEULEN some help in understanding...

The French battle plan

Before getting into the subject, I ask Patrice Roussel if he can give us his definition of the New Economy. The answer from the head of the services department at INSEE goes straight to the essence of the work of statistical reporting.

"Studying the New Economy means analysing the changes that the new information and communication technologies (ICT) have brought to the way the economy works."

This is a huge agenda which has led to some confusion, with the emergence of the New Economy going together with both instant requests for relevant information and a need for time to clarify concepts.

Urgency versus clarification

"Any developing phenomenon upsets the statistical status quo, since any changes affect the organisation of firms and their activities, and some time is needed to adapt the existing statistical set-up.

"It is against this background that consultancies have emerged that produce speedy surveys and polls of people's opinions. They churn out figures without offering any definition of the concepts that allow the data to be compared and their validity checked."

Upheaval

"There has been an upheaval in the statistical set-up, and this upheaval has been abetted by government action, such as the 'Lorentz Mission', intended to keep France competitive – there was talk of lagging behind – by encouraging SMEs in particular to invest in the new information and communication technologies.

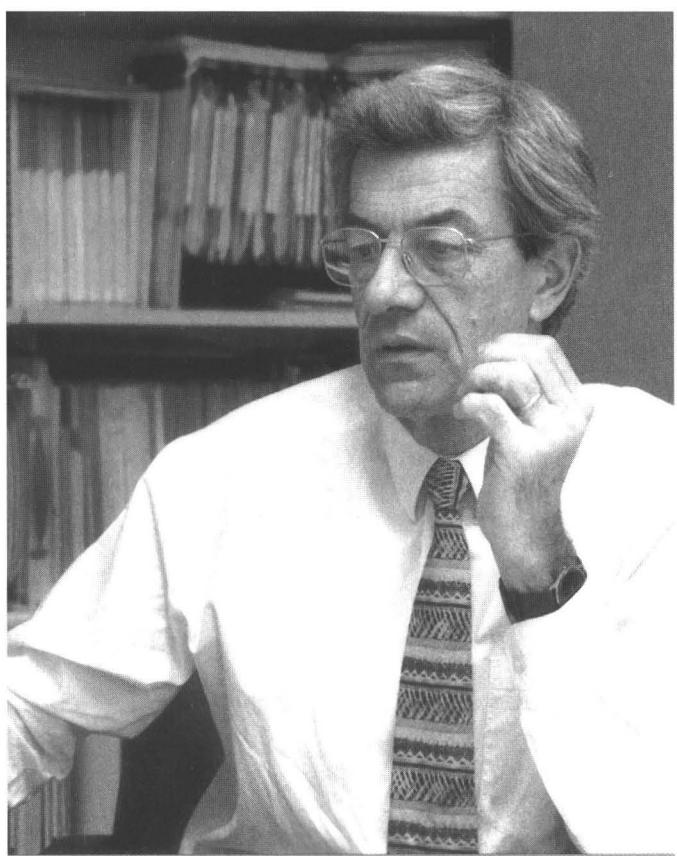
"Other factors have had an impact on the ministries' statistical departments that are more in tune with requests coming from the ministries, such as SESSI (the Ministry of Industry's statistical service), which was prompted to conduct a survey on the impact of ICT on manufacturing firms. Another department that is less well known, the Legal and Technical Service on Media Matters[1] (SJTI), responsible for monitoring the development of the media – i.e. audiovisual, advertising and the press, three core areas of the Information Society – was also involved in keeping track of the impact of ICT on the sectors in question.

"As for my department, the statistical department in charge of firms involved in trade and services, has in fact been on the receiving end of queries from professional organisations representing computer services and trade, who have been keen to follow what is happening.

"In the case of households, in May 1998 INSEE included for the first time in the ongoing survey of household living standards a rolling questionnaire on households' ICT equipment and Internet access."

Recommendations for 2001

"It is primarily the National Statistical Information Council (CNIS) that speaks for official statistics. A working party on



Patrice Roussel, 56, has been head of the services department at INSEE since 1995.

Patrice Roussel, educated at the *Ecole nationale de la statistique et de l'administration économique*, spent the major part of his professional life at INSEE with the exception of 1984-1989 where he worked in the statistical service of the French Ministry of Industry and from 1989-1994 where he was seconded to Eurostat's business statistics directorate.

A rosy future beckons for services statistics in France as elsewhere.

ICT was formed at the CNIS in September 1999 with the aim of studying the response of official statistical services to new requirements and producing recommendations designed to remedy any shortcomings. The recommendations for 2001 were in fact approved at the plenary meeting of the CNIS on 7 December 2000."

So, what approaches have been studied to instigate a better response on the part of the statistical set-up in France to the new ICT requirements?

"The recommendations of the CNIS working party have a multiple thrust:

- to make better use of regular surveys, which should include questions designed to look at e-commerce – both B2B (business-to-business) and B2C (business-to-consumer) – and also to provide information for the national accounts on investment and spending on computer and telecommunication resources (gross fixed capital formation);
- to construct price indices to ensure proper deflation of computer products and services for firms and individuals;
- to adapt the French nomenclature of activities to take account of the emergence of new activities and internal changes to existing activities."

How does this affect your particular area of responsibility?

"We are in the process of adding two filter questions to our annual surveys on trade and services. The first refers to the proportion of purchases and sales conducted electronically – and this involves a broad definition of e-commerce formulated by the OECD that goes beyond just the Internet – in the reference year 2000, and we are organising questions on investment and spending by firms in order to collect information on ICT products, equipment and services, for the reference year 2001.

"As for households, a detailed survey on ICT equipment and use is scheduled for October 2001. Ideally, this survey should be repeated frequently, every year if possible. In between, we could ask questions on the main indicators contained in the Eurostat and OECD trend charts. The main objective is still to compile data that can help us to make comparisons with our neighbours or with countries farther afield."

Reshaping the statistical set-up

Two years after the 'Lorentz Mission', official statistics in France are being reshaped around the New Economy. As Roussel himself states, the battle plan has been firmed up. But the message that really comes across when you talk to him is the lack of any sense of anxiety, which is often the feeling that comes from those involved in the New Economy.

Backed by a recent survey showing that B2C transactions represented no more than 0.5% of total business sales in 1999, the head of services statistics at INSEE explains why:

"First of all, there is the phenomenon itself. It is hard to get to grips with something that barely exists, and which poses a statistical problem because of limited quantities. What are we supposed to look at?", he asks rhetorically.

"In any case, ICT is the marriage of computers and telecommunications, allowing firms to transform themselves into networks. As long ago as 1996, we were already looking at individual sectors and their use of networks to follow trends in the organisation of production from start (with the raw materials) to finish (with distribution).

"The use of networks has changed the way industry and trade work. Nowadays, business relations with suppliers have been completely revamped with the advent of new technologies. No type of undertaking has been spared, not even SMEs.

"At the same time, the new technologies are providing new opportunities for intermediation and disintermediation and allowing firms to make limited or total changes to their activities. Some big changes can be expected in the nomenclature of activities, with the appearance of new activities such as call centres, and changes too in relations between activities."

Blurring boundaries

"It is becoming harder and harder to explain and, in some cases, even to define the boundary between trade and manufacturing, and between manufacturing and services. Traditionally, postwar official statistics have regarded manufacturing as an activity with a capital 'A'. It is not by chance that the statistical coverage of ICT is better when the purely manufacturing aspect is considered, such as the manufacture of computer and telecommunications equipment."

The other part of Patrice Roussel's comments refers to the traditional statistical discussion on reconciling data usefulness and the durability of concepts.

"The second reason rests on the necessary distinction between the fleeting and the fundamental, and this takes time. And while we should not waste any time, we are not going to do the job properly if we rush things. Perhaps we are not ahead of the rest, but as an official service we need to authenticate our concepts. When various consultancies talk about 'web-surfers', for

VOORBURG

Set up in 1986 under the auspices of the United Nations, the Voorburg Group addresses issues relating to the development of services statistics. The first meeting was held in the Dutch town that gave the Group its name.

After paying particular attention to developing the service sector within the UN Central Product Classification (CPC) and International Standard Industrial Classification of all Economic Activities (ISIC), the Group has also turned to other matters such as employment, skills and occupations in the service sector, international trade in services, the prices of services and estimates of the real product of service activities.

The programme for 1999-2001 focuses on the classification of services (telecommunications, computer services and selected professional services) and their prices.

At the most recent meeting of the Group in Madrid in September 2000,

example, do we really know who they mean?"

This clarification exercise has a major international angle to it. French statistics in general, and Patrice Roussel in particular, are actively involved in current efforts.

"We are playing our part both on the OECD working party on e-commerce statistics and on the Eurostat working party, led by Douglas Koszerek, on the Information Society. We are also in the Voorburg Group. (*see box*)

"At the moment, the OECD is the main forum for discussing concepts (*see article on page 29*). We have just had a restricted meeting, at which we adopted a definition of e-commerce with help from statisticians. The same goes for the definition of the ICT sector, although we are still waiting for the part on content, which we expect to have completed by next April, which means that we shall then have a definition of the information economy.

"Where the Eurostat working party is concerned, we are trying to define a strategy for Information Society statistics. 'Strategy' here means a medium-term approach going beyond the short-term need for an opinion poll on the extent to which firms use ICT, for example."

NACE for the New Economy

"In this working party, we stress the need for the NACE classification of economic activities within the European Communities to be amended from 2002, with a revision scheduled for 2007. The directors of the various EU statistical institutes are keen on the 1997 American classification, which is ahead of the NACE nomenclature. This work should not be limited to the specialists, but should also involve business statisticians.

"On the subject of Eurostat, I should like to sing the praises of Mr Lancetti, who was already talking about the Information Society in 1997 and who helped to alert us at a very early stage to the need for coordination in particular, and to the need to change our business surveys.

"Lastly, in the Voorburg Group, we benefit a lot from pooling our experiences with other countries. The Group acts as a kind of clearing-house for methodologies for the developed nations and provides an opportunity to learn from work done in Canada and the United States, for instance, so that we do not have to go over the same ground again. What I particularly have in mind here is the work on the price index for services, especially computer and telecommunication services.

"This desire for harmonising our work is furthered by bilateral contacts. For instance, we are frequently in touch with countries like Finland and Denmark for statistics on ICT use, and with Canada in connection with prices."

Towards an ICT price index

In some ways, the price index is a kind of 'black box' for statistics on the New Economy. The 2000 edition of the INSEE report on the French economy contains a section on the dissemination of ICT, which makes specific reference to "a number of problems" relating to the calculation of an ICT product price index, "since falling prices are often coupled with improved quality."

This part of the report also highlights the difficulty of making a distinction between products and services, given that the former increasingly incorporate a service element while service activities contain more and more ICT products. In spite of this difficulty, the report in fact provides INSEE data on ICT services.

We have thus come full circle. The statistical set-up in France is getting ready to incorporate the new economic arrangement prompted by the marriage of computers and telecommunications. And it is not in the least paradoxical if on the one hand Patrice Roussel acknowledges some delay in getting started, while the Eurostat working party regards the 1999 INSEE-SESSI-SJTI report on information technology and the Information Society as a starting-point for describing the structure and scope of Information Society statistics. In this particular instance, delay does not equate with tardiness. As the Chinese characters hanging in Patrice Roussel's office cheerfully point out, self-control is the answer. It is no mean thing when it is a question of surfing the wave of Information Society statistics. ■

GROUP

one of the main decisions was to arrive at conclusions in time for the 2001 meeting on the question of product prices in the field of telecommunications, legal services, accountancy and engineering. Eleven EU national statistical institutes and a delegation from Eurostat attended the meeting in Madrid.

Patrice Roussel is not only a member of the Bureau of the Voorburg Group but also plays an active part. In 2000 he presented to the sub-group on prices of services a report on the state of services statistics in France. In the section on the Information Society, he mentioned various current and planned actions:

- in the case of household surveys, the inclusion of questions on specific equipment in the multiannual survey, filter questions in the annual survey in May and a special detailed survey for October 2001;
- with regard to the impact of ICT on firms, a special survey of industry was conducted during the fourth quarter of 1999, as well as a survey of retail trade in September 2000; surveys of trade groups and the exchange of computerised data within such groups were started at the beginning of 2000, and the inclusion in business services surveys of filter questions concerning on-line purchases and sales is scheduled for 2001.

In the Voorburg Group, the members represent their various national statistical offices but express their own views when taking part in discussions. This 'methodology forum' should ideally lead to the emergence of a 'consensus as to the most practical methodology and approach to the compilation of statistics relating to prices', especially for telecommunication services, computer services and selected professional services.

1) This has since become the Directorate of Media Development, also attached to the Prime Minister's office.

More than two years after the Spanish telecommunications market was fully opened up to competition, *Sigma* asked **JOSÉ L. DE MIGUEL**, Director of the Telecommunications Market Commission (CMT), the body regulating telecommunications in Spain, to share his country's experience and to take stock of a key Information Society subject.

The Spanish Telecommunications Market

The New Economy consists in the revolution of information and communication technologies (ICT) and in their integration into the production process. ICT are therefore a key element for the advent of the New Economy.

As the Spanish telecommunications market has historically developed in a monopoly system, it is characterised by a high degree of integration between various services, both vertically and horizontally. The liberalisation of the market should normally lead to greater competitiveness in any of the sectors especially because of new actors coming onto the scene. However, this is not what has happened.

Effective competition ...

Effective competition has only taken place in a limited number of sectors while in others it has led to inconclusive developments; sometimes even it has been absent.

This contrast can be explained first and foremost by the imbalances between production costs and the final price of services, the different lengths of time required for developing different businesses and the different levels of investment required to set them up.

... but limited

In the fixed telephone market, the new arrivals have introduced competition in both the long-distance communications sector and in the market for business customers. Currently, this section of the market has over thirty operators who are offering users more than 55 different pricing schemes. These pricing schemes result in differences of up to 60% compared with Telefonica's basic prices. Furthermore, customers who make more long-distance calls are offered significant volume discounts in certain cases. In contrast to this abundance of offers, the local communications sector has attracted practically no attention from new operators. The little that is on offer is aimed at the corporate client market.

The exception of cable

Cable telecommunications operators are somewhat an exception in the Spanish telecommunications landscape. In fact, they are continuing to concentrate their efforts on extending their networks, before marketing their services.

In 1999, investment by these operators represented 12% of the total for the sector, and their networks already reach 10% of Spanish homes – the Spanish market, unlike other European markets, did not use to have cable television operators. At the beginning of 2001, the eight operators with licences to provide wireless local-loop access will start to offer their services on a general basis, which should increase competition in this sector.

These trends can be seen in the majority of European countries. The Spanish government regards the lack of services and competitive prices offered to households and businesses as a competitive disadvantage in the rush for a good position in the New Economy, compared to the US.

Among the regulatory measures that are being taken to overcome this situation, the Spanish Government recently decided to lay down rules on unbundling the local loop, the pre-selection of the operator for local calls and a flat rate for telephone access to Internet service providers. It is, however, too early to be able to judge their effectiveness.

The promises of the Internet

The Internet access market is showing promising signs and attracts the attention of both the authorities and the operators. In 1999, the number of customers of Internet Service Providers (ISP), according to CMT estimates, was 3.1 million, an increase of 366% compared to the previous year. And according to the Association for the Investigation of Communication Media (AIMC), there were 4.7 million customers in May 2000.

Almost two thirds of these users had free Internet access, an offer which was available throughout 2000. Partly as a reaction to the Government's legislative action, in July 2000 four operators introduced offers of a flat rate for access to ISPs via switched telephone lines outside office hours.

Two months later, according to these same operators, the number of users who had signed up for this arrangement amounted to 268 000, an average of approximately 4 400 additional users per day. As can be seen from the impact of offers of flat rate and free access to the Internet, users continue to see the price as an obstacle to using it.

Mobile telephony's exponential growth

The mobile communications market continues to grow exponentially. The number of users, increased by 130% in 1999 to 15 million. At the end

of September 2000, the three operators reported some 22.5 million users, which amounts to a penetration of approximately 56% of the population.

Despite the fact that investment levels have remained very high (33% of the total for the sector in 1999), prices have continued to fall, by 18% according to our estimates.

... more than services

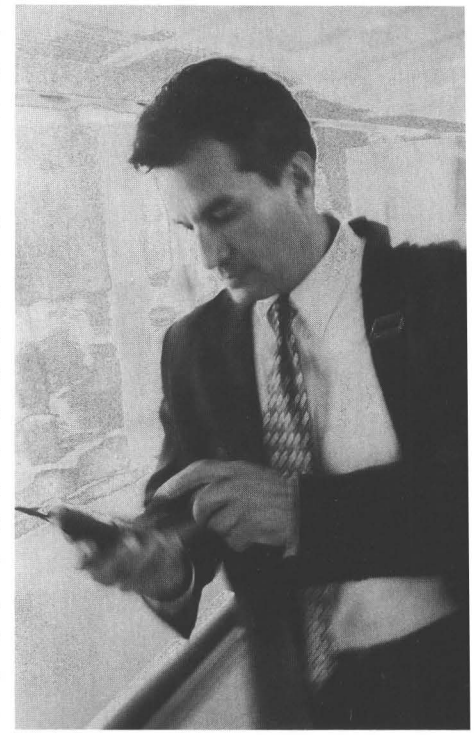
The increase in the volume of services used and in the resulting turnover has not followed that of the number of customers.

The operators are trying to reverse this trend by introducing and promoting new services related to data transmission, such as sending short messages and access to information services (such as the Internet) using WAP technologies.

Telefonica's mobile-phone subsidiary, Airtel, reported a total of 1.5 million messages for the first nine months of 2000, which represents an increase of 345% compared with the same period in 1999.

In March 2000, four licences were granted for third-generation UMTS services, to the three operators already in the market and to one newcomer. They have committed themselves to starting to provide services of this type in the second half of 2001.

To conclude, business initiatives in the sectors of the market where there is competition, and the measures taken by the authorities in other sectors, give grounds for optimism about the development of telecommunications in Spain. While the telecommunications market may not be the only factor responsible for the emergence of the Information Society, it is without doubt an essential prerequisite. ■



Continuing the analysis of Spain's experience, *Sigma* asked **PEDRO J. HERRERA GIMÉNEZ**, technical expert in this domain at the INE, to give us the state of play in Spain.

The response of Spanish statistics

Today one cannot talk about the rapid development of Information and Communications Technologies (ICT) without evoking the Information Society and its statistical corollary.

Already in May 1997, the Conference of Directors-General of the National Statistical Institutes (DGINS) in Helsinki was dedicated to the subject, making it possible to take stock of the statistical problems of studying this phenomenon.

The Information Society (IS) is a multidisciplinary and thus complex phenomenon, and is moreover in a state of dynamic evolution. Both characteristics make statistical investigation of the IS a great challenge. This complexity means developing new integrated statistical methodologies that are capable of capturing the impact of ICT in every facet of society, so as to maximise the information obtained from the various studies already carried out.

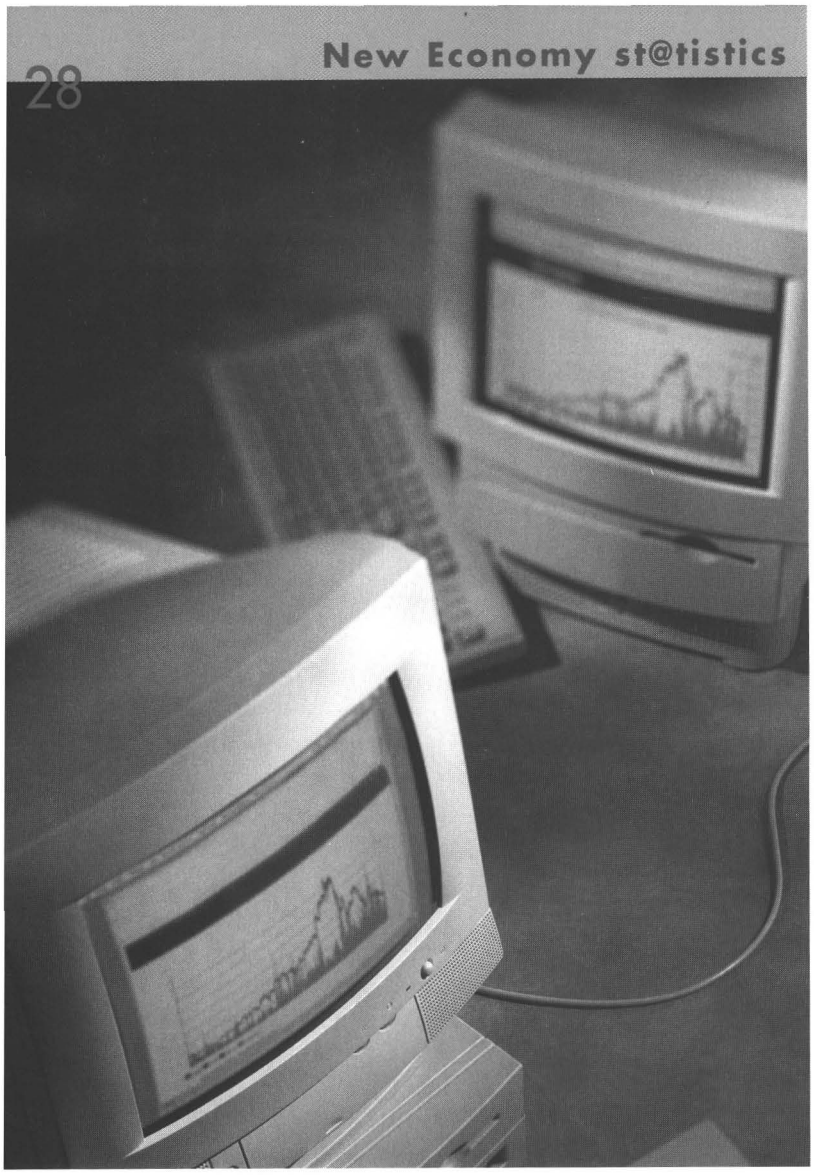
The dynamic nature of the IS is a result of the development of ICTs themselves. Citizens' habits, the way they relate with each other, everything or almost everything is in a state of flux and change in line with the pace of industry's technology-led development. The time dimension is different, greatly accelerated.

Anticipating the needs

This dynamism leads one to question the notions of 'short-term' and 'structural' in terms of statistics. One year for a business in the 'old economy' can be equivalent to two, three or more years for a business in the New Economy.

This makes it necessary to adapt the statistical mechanism to this faster pace in order to be able to record the real situation as accurately as possible. To this end, the frequency with which data is made available must be increased by developing more flexible methodologies that allow new data needs to be anticipated in line with the development of the IS.

INE wants to set up a National Statistical System for the Information Society in order to measure the IS using a certain number of New Technology Indicators. The measure focuses on the development of ICTs and their corollary services, both in terms of supply and demand:



Measuring supply ...

Measuring the supply side takes place via the exhaustive analysis of the units (enterprises) that supply new technology products, in the telecommunications, audiovisual and IT sectors. Information is collected from each of these sectors, comprising both accounting and other specific data, through various surveys:

- In the Annual Services Survey, the modules on IT, telecommunications and audiovisual services will be included annually from 2001. Numerous indicators are obtained from these on the main features of each sector, such as for telecommunications the number of connections and the connection rate, the number of subscribers, the Internet access rate etc.; in the IT sector income from the sector's different activities (consultancy, software maintenance etc.) and the distribution of staff by category, duties, age, sex and education level; for the audiovisual sector the breakdown of purchases and expenditure on external services by suppliers (production, distribution, showing etc.) or the breakdown of turnover by activity.

- The pilot survey on electronic commerce for 2001 will collect, among other data, information on the barriers, the types of connection used and the percentage it represents in turnover. There is also a small section in the short-term survey of retail trade, which is already operating with a three-monthly frequency that shows the distribution of electronic commerce per article.

... and demand

Measuring the demand side involves studying the changes in behaviour both of the businesses which use these products and of households:

- For businesses, the new technologies module of the structural survey on the service sector is a good source of data. This information will be extended to cover industrial enterprises in the course of 2001. Indicators on ICT products and electronic commerce are extracted from this module (purchases and sales made).

- Regarding education, a specific statistical operation has been launched in cooperation with the Ministry of Education. The measure aims to ascertain educational establishments' ICT infrastructure, its use by teaching staff and pupils/students and the expenditure on this infrastructure.

- For households, data are currently collected on certain variables in existing surveys. An operation is planned which will investigate the phenomenon more thoroughly.

Using what we have

Another source of information is to take advantage of existing surveys, such as the Labour Force Survey (LFS) or that on earnings in industry and services, which yield data on trends in earnings and employment in the new technology sectors' branches of activity.

A statistical apparatus appropriate for the Information Society also requires the harmonisation of indicators at international level and the cooperation and coordination of all international actors.

At international level, INE has participated since 1997 in Eurostat's working parties on the IS. It is also taking part in the OECD working party on the Information Society, and in the Voorburg Group, which is made up of experts in services statistics. This ensures that the Spanish system of IS statistical indicators is fully harmonised and comparable at international level.

At national level, because of the multidisciplinary nature of the IS, INE considers cooperation and coordination between public and private operators fundamental to establishing an integrated IS statistical system.

Various initiatives are, in fact, underway. In the public sector, a working party on IS statistics, coordinated by the INE, was set up in 1999 within the Interministerial Statistics Committee (a body responsible for the horizontal coordination of the central government statistical departments). In addition, contacts and cooperation with professional organisations and associations (CMT[1], SEDISI[2], ANIEL[3], Idescat[4]) were established for exchanging opinions and suggestions. ■

1. Telecommunications Market Commission
2. Spanish Association of Information Technology Enterprises
3. Spanish Association of Electronics and Telecommunications Industries
4. Catalan Statistical Institute

ANDREW W. WYCKOFF*, Head of the OECD Economic Analysis and Statistics Division, outlines in this article the efforts being made to address the measurement challenges posed by the New Economy.

Crossing traditional statistical boundaries

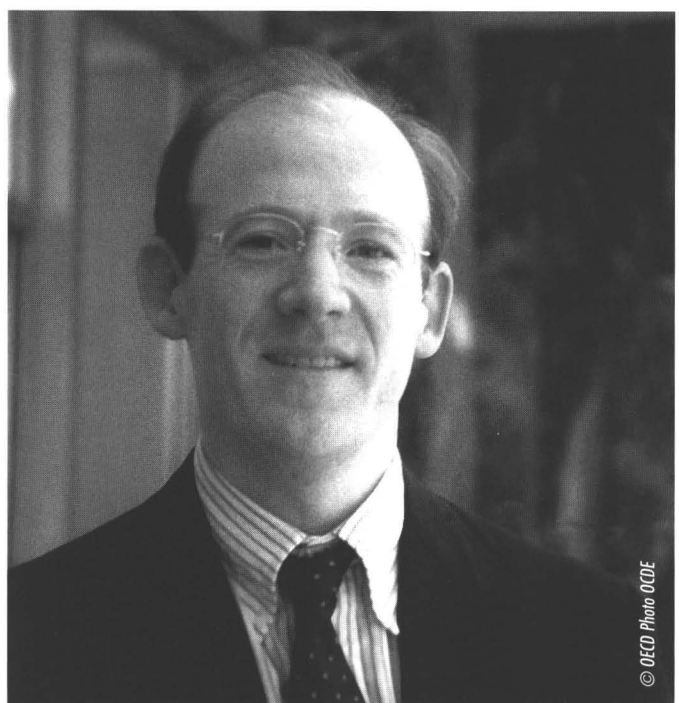
The OECD began to grapple with the New Economy concept in 1999, when Ministers asked the organisation to explain an observed divergence in growth trends across member countries during the 1990s. In particular, Ministers singled out "*... rapid technological innovation, the growing impact of the knowledge society and conditions for fostering the start-up and growth of new enterprises.*"

Our preliminary results suggest that it is not any one sector, technology, or policy that leads to sustained economic growth with low levels of unemployment and few inflationary pressures. Rather, a constellation of factors appears to interact to create an environment conducive to economic growth based on innovation.

Information and communication technologies (ICTs) play a key role in the discussion related to the New Economy, but are not the only element. ICTs are general-purpose technologies which, thanks to a dramatic drop in prices, are now used across a wide range of industries and have productivity effects both real and potential, measured and hidden. Earlier technological waves also led to similar broad-based applications and productivity impacts, fostering a "new economy" in their days. There is little reason not to believe that it will not occur in future. Many consider that biotechnology could be the next such wave.

The two-year, multidisciplinary 'Growth' project (www.oecd.org/subject/growth/), has shown that many of the existing statistical measures are inadequate for analysing the linkages and dynamics of the innovation process that are central to the New Economy concept. Existing measures need to be updated and complemented with new metrics in an integrated framework.

Setting up a statistical framework to capture and track this phenomenon is a daunting task, but it is one that the OECD, as well as other international organisations like the European Commission and Eurostat, need to address both in their role as policy analysts/advisors and as forums where member countries come to discuss common problems. While various efforts are underway at the OECD to improve the measurement of human capital, skills and trade in services, to mention but a few, the intention of this article is to describe briefly the efforts being made in the area of science, technology and industry (STI) indicators.



Andrew W. Wyckoff, a keen observer of industry-services interactions, e-commerce and the impact of technology, leads the OECD's efforts in statistical indicators on the Information Society as head of the Economic Analysis and Statistics Division within the Directorate of Science, Technology and Industry.

A new statistical framework

The measurement of science, technology and industry is crucial to understanding whether, and to what extent, the sources of growth are changing in the New Economy and to helping policy-makers address its challenges. The OECD has traditionally worked with its partners to develop methodologies for the

* Views expressed here are those of the author and do not necessarily reflect the opinions of the OECD or its member countries.

measurement of internationally comparable indicators in such areas.

While this is part of our longer-term measurement strategy, emerging policy needs related to the New Economy have created shorter-term challenges for our statistical framework. This has entailed looking across various statistical disciplines such as enterprise statistics or science and technology indicators – where the traditional boundaries seem to be blurring – to create a more comprehensive, cohesive approach that draws on the conceptual, analytical and policy work associated with the 'Growth' project.

Four interconnected strands are apparent:

- documenting the changing relationship between innovation, science and the economy;
- better understanding dynamics and productivity at company level;
- mapping the international flow of knowledge, and
- tracking developments in information and communications technologies and applications such as electronic commerce, and linking them to the broader issues related to the Information Society.

Since most interest is in the latter, efforts underway at the OECD to better measure this area will be described in more detail after briefly outlining work in the other areas.

Measuring the link between science, technology and the economy

As the process of innovation becomes more central to economic performance, the mere measurement of this activity, which has been led by Eurostat with the Community Innovation Survey, takes on increased importance.

The OECD concentrates its efforts on a key component of the innovative process, namely R&D. It maintains an R&D database for all 30 member countries as well as several non-member countries including Russia, China and Israel. The methodological underpinning for this measurement is the Frascati Manual, the first draft of which dates from 1957 and is undergoing its fifth revision. The elements of this manual that are being revised reflect the changes wrought by the New Economy: R&D performed by services, cooperative R&D and better measurement of R&D personnel are three of 19 issues under review.

As science and innovative activity become more central to economic performance, the tendency to patent has increased and the nature of patenting (e.g. software, business methods, co-patenting across institutions) is changing. The OECD is building a large database of 'patent families' (patents taken out in the United States, the EU and Japan) that allow us to track this area and develop methodological guidelines.

Exploring the macro-micro link

Trends in productivity, measured both as labour productivity and multifactor productivity, are one of the most important indicators for investigating the New Economy. Key to measuring productivity is the assessment of output and input, both of which have been affected by the rising share of technology-intensive sectors like ICT where, the *quality* of the product has improved, making comparisons over time difficult.

The OECD has sought to help member countries grapple with this problem by issuing a final draft of a Productivity Measurement manual. A complementary handbook on the quality adjustment of the ICT (hedonics) is still in draft form. This work is being co-ordinated with the development of other handbooks such as the CPI and PPI manuals (currently developed under the leadership of the ILO and IMF, respectively) and Eurostat's 'Handbook on Price and Volume Measures in National Accounts'.

However the analysis of productivity at macro or sectoral level misses out on the heterogeneity present at enterprise-level. This, combined with the need to better understand the extent of 'creative destruction' inherent to the entry and exit of firms, was behind the formation of a group of ten countries that are undertaking enterprise level analysis as a contribution to the final report of the Growth study. This work has been orchestrated by OECD's Economics Department. A workshop, scheduled for November 2001 will bring together this group with enterprise statisticians to assess how best to formalise this initial effort and build on existing work such as Eurostat's work on business registers and enterprise demography.

Measuring the flow of knowledge

The development, the exploitation and the circulation of knowledge are fundamental to economic performance based on innovative activities. It is clear from our analysis that, given the complexity of innovating at the technological frontier, even the largest and most technically sophisticated countries cannot advance by themselves alone. Rather, those that had the best performance in the 1990s tend to be those most open to input/ideas from abroad.

This international flow of knowledge can take many forms and crosses the boundaries of international trade, labour and enterprise statistics. The OECD is currently focusing on two of these areas: the impact of foreign investment and the international mobility of highly qualified personnel.

Since 1992, we have collected data in concert with Eurostat on the economic impact of foreign direct investment that seeks to go beyond the reporting of gross and net flows in value terms to measure the economic importance of multina-

tional firms by measuring their share of sales, employment, and R&D. This work started with inward manufacturing investment, and is now progressing to include outward manufacturing investment and services. An overall framework for this work is being developed in the form of a manual on Indicators of Economic Globalisation in collaboration with Eurostat, the World Bank and the IMF as well as OECD member countries.

One factor frequently quoted as having allowed the United States to sustain rapid, non-inflationary growth from sectors that need specialised skills (e.g. software) was its ability to attract highly qualified personnel from abroad, especially software engineers from China and India. While work on mobility of human resources in science and technology (S&T) has been underway for some time as part of the analytical work on 'national systems of innovation', a new collaborative effort has been launched in cooperation with OECD's Education, Employment, Labour and Social Affairs Committee to advance this work. A series of country reports, to be delivered at the beginning of 2001, will identify data and methodological problems and will form the foundation for a workshop on international mobility planned for April 2001.

Measuring the Information Society

The measurement of the Information Society is part of the OECD's longer-term statistical work. Starting in 1997, a three-pronged approach has been taken to tackle this complex issue. First, there was the establishment of a set of definitions and methodologies to facilitate the compilation of internationally comparable indicators based on official, national statistics.

Second, given the complexity of the issue, a 'building blocks' approach was taken. Methodological work and data collection have proceeded in several areas at different speeds, in a step-by-step, pragmatic way, by looking first at supply side statistics for the Information Society, and then at the demand side (usage statistics). Within the latter area, the focus was on usage first in business, then in households, then in government.

Third, the work, carried out by a group of statisticians meeting under the aegis of the Working Party on Indicators for the Information Society (WPIIS), has greatly benefited from the guidance of policy-makers and of the OECD's Information, Computers and Communications Policy Committee. This has meant that user needs have closely guided the sequence and timing of the formation of the different 'building blocks' of the Information Society.

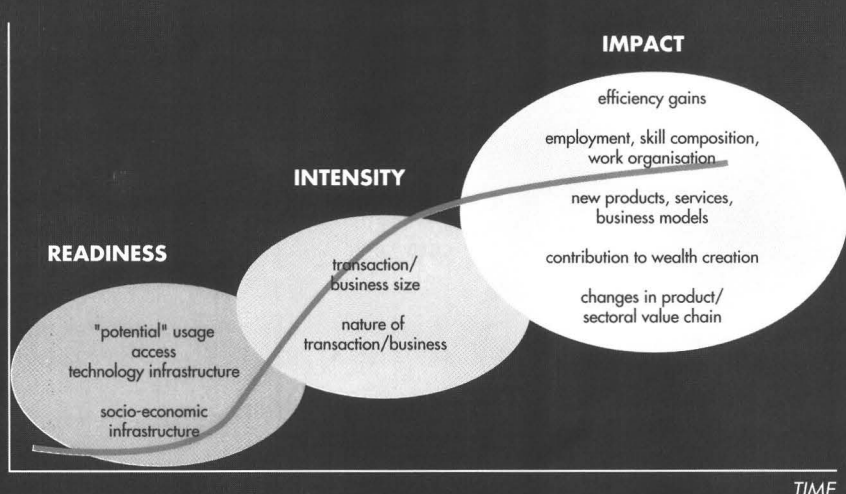
The Working Party on Indicators for the Information Society (WPIIS), in co-ordination with Eurostat and the Voorburg Group (a UN group dedicated to services), initially developed an internationally agreed definition of the ICT sector. The activity-based OECD definition for the ICT sector was approved by the WPIIS in June 1998 and declassified by the Information, Computer and Communication Policy Committee (ICCP) in September 1998. The OECD has subsequently moved to implement this definition by developing a set of statistical indicators for the sector (*available at: www.oecd.org/dsti/sti/it/prod/measuring_ict.pdf*).

Modifying classifications

It is also important to define a set of commodity outputs emanating from the ICT sector and the OECD is working to produce such a definition for its April 2001 meeting. This set needs to be built around existing standard commodity classifications. Those relevant for this exercise are the Central Product Classification (used for goods and services of local production) and the Harmonised System (used for data on international trade).

While these are both structured classifications, they do not specifically identify ICT goods and services. Hence, they require modification before they can be used for measuring ICT sector commodities. More importantly, they are both relatively old classifications and consequently do not necessarily identify the new goods and services about which users require information. Work on this part of the project has been somewhat slower than initially planned, but it is hoped that a proposed definition will be

Translating Policy Needs into Indicators for e-Commerce



Source: OECD (1999), Defining and Measuring E-Commerce: A Status Report

submitted to the April 2001 meeting of WPIIS.

The activity-based ICT sector definition is limited to those industries that facilitate, by electronic means, the processing, transmission and display of information. It excludes industries that produce the information, the so-called 'content' industries. However, this is a rapidly growing sector and of intense interest to policy-makers. The issue of a 'content' sector is being looked at in terms both of industries and commodities. The initial step is to form a rationale for the goods and services that fall into these categories and to proceed with constructing industry and commodity definitions.

To fully assess the Information Economy and the Information Society requires an understanding of how the outputs of these sectors are disseminated across the economy. The OECD is working with the Voorburg Group and Eurostat to develop model surveys of the use of ICT goods and services for the business enterprise, government and household sectors. The most developed of these surveys covers the business enterprise sector – where the Nordic countries have taken a lead role. It is envisaged that the initial format of this survey will be adopted at the 2001 meeting of WPIIS. Surveys on the household use of ICTs are also being developed, with Australia as the lead country.

Measuring e-commerce

Electronic business processes are carried out using ICT technologies and applications. In this respect, the measurement of e-commerce is one component of ICT use and so can be considered in the context of the model ICT usage surveys referred to above. However, because of the extreme policy and media interest in e-commerce, it has been developed as a separate stream within the WPIIS work programme.

The OECD organised a Workshop (April 1999), which brought together the expertise of business, policy makers, researchers and statisticians to discuss issues of definition and measurement of e-commerce. An Expert Group on Defining and Measuring E-commerce was established with a mandate to "compile definitions of electronic commerce that are policy relevant and statistically feasible". This Expert Group has worked on the three interrelated aspects of this problem: a framework for user needs and priorities, definitions, and statistical measurement.

User needs were clearly articulated at the joint meeting, where a model that sets forth three basic sets of indicators required for policy purposes, was adopted. They relate to readiness, intensity and impacts (*see figure on previous page*). At this meeting, it was acknowledged that policy-makers' needs are often very broad, as they wish to understand the impact of e-commerce across the economy and over all business processes. On the other hand, they need data at a very fine level that measure different e-commerce segments as the drivers, technological solutions, impacts and policy implications may be different.

Given this, it became clear that one definition would not be suitable for all needs. The Expert Group has therefore developed a set of nested definitions – one narrow and another that is broad. Each definition has three dimensions – the communication networks on which e-commerce is conducted, the applications viewed as being part of e-commerce, and the economic activities (or business processes) being undertaken. The Expert Group has met to provide more detailed specifications of the terms used in the definitions, and to review and refine the list of indicators based on a study of member country statistical practices.

Having established operational definitions of e-commerce and the processes for which indicators might be required, the Expert Group meeting was then able to consider the range of indicators based on their own national experiences, data availability and methodological coherence of the data as determined by an OECD survey. They concluded that the indicators should be considered for inclusion in an initial OECD data compilation exercise. As part of this process, it is expected that a good deal will be learned about the extent to which indicators are comparable between countries, or can be modified so that they become comparable.

Already, it is clear that significant work lies ahead to identify clearly which business processes should be measured, to decide whether buying or selling products via e-mail constitutes electronic commerce and to gain a better understanding of how businesses and consumers keep their accounts so that our measurement of electronic commerce is based on the practical availability of data as opposed to a theoretical wish list.

The real challenge

While current dynamics of economic performance may appear to be 'new', many of the statistical challenges posed have in fact existed for quite some time. To some degree, the greatest challenges may lie not in counting secure web servers or schools with Internet access, but in accurately measuring the output of the services sector, especially those services that are intensive users of ICT such as banking, retail and health, where the economic impact of the technology is expected to be the strongest.

Another ongoing challenge accentuated by the New Economy concerns the classifications we use – both by activity and by product – that limit our ability to identify the use, manipulation and transformation of information into knowledge. Associated with this is the growing interest in technologies such as electronic commerce or biotechnology that are strictly neither industries nor products, but rather methods or processes.

All of these tasks will require a crossing of statistical boundaries between enterprise statistics, national accounts, and technology use surveys that represents an important, but difficult challenge that international organisations such as the OECD and Eurostat should help to address. ■

No coverage of the topic 'New Economy' would be complete in *Sigma* without paying a call on **DETLEF ECKERT**, Head of Unit for analysis, policy planning and coordination of competition cases in the European Commission's DG 'Information Society'. He talked to FRANÇOIS VERMEULEN about....

Europe's drive towards THE NEW ECONOMY

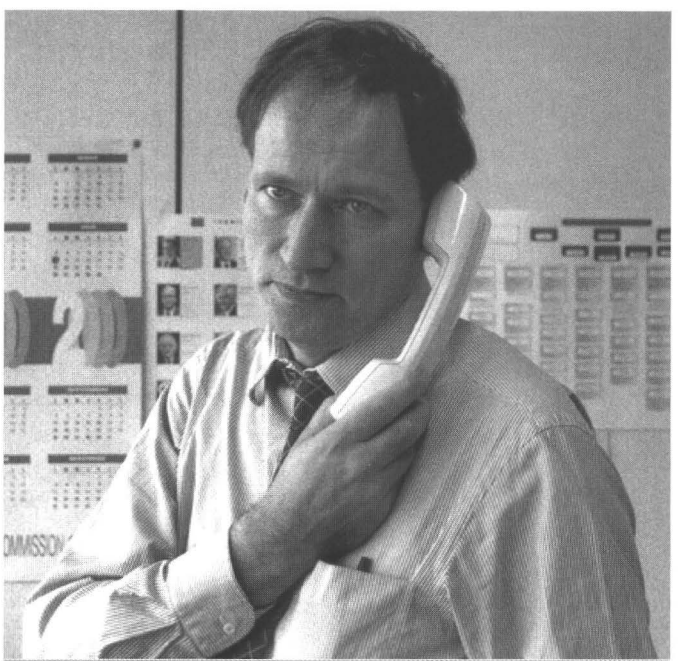
eEurope, eLearning, eContent, eBusiness, eSociety: it is little wonder that ordinary people in Europe are lost and 'e-mazed' by all these names. But a chat with Detlef Eckert quickly explains what is at stake and what new statistical fields are due to be developed as a result of the *e*Europe initiative that was announced in December 1999.

Detlef Eckert bustles into his office and quickly gets down to business. Today is the day when the Internal Market Council is supposed to decide on a list of statistical indicators to be used for the action plan that accompanies the *e*Europe initiative.

Europe's added value

What is behind the eEurope initiative?

"The *e*Europe initiative was developed by the Commission with the emerging New Economy in mind. The added value of the venture lies in the knock-on effect that it can have, since many things are expected to happen: there is going to be more widespread use of the Internet, e-commerce is going to take off, and so on. The Commission's objective is to speed things up, because there are tremendous potential gains for our economies and because our competitors are also moving ahead.



Detlef Eckert, 47, German, joined the European Commission in 1988. The former civil servant from Bremen is familiar with technology issues; between 1985 and 1988 he was Head of Unit responsible for economic matters, technology and external trade. Before that, from 1979 to 1985, he was an assistant lecturer at the University of Siegen, where he obtained his doctorate in economics in 1979.

"The simple aim of the *e*Europe initiative and its related action plan is to move things along in three directions: increasing Internet use through cheaper, faster and more secure access, investing in human resources (people and skills) and fostering Internet use in sectors such as e-commerce, government, health, etc."

A quick review of the initiative, which the Commission adopted on 30 November last year, highlights not only the considerable progress achieved but also the plan's knock-on effects on both the public and private spheres.

In conjunction with this, Erkki Liikanen – the Member of the Commission responsible for the Enterprise and Information Society DGs – announced the latest results of a survey ordered by the Commission that shows a 55% increase in Internet penetration over the last six months. In October 2000, 28% of households in the European Union were hooked up to the Internet, compared with only 18% the previous March.

Where does your DG figure in implementing the eEurope plan?

"Our DG was the driving force behind the action plan that was adopted by the European Council at Feira last June. The actual implementation of individual measures depends on the various Directorates-General involved, such as the Education and Culture DG, the Internal Market DG, the Employment and Social Affairs DG and the Enterprise DG, to name only a few. Our role is to coordinate

all these activities. Finally, the Information Society DG is directly responsible for the regulatory framework of anything relating to electronic communications, and it is in charge of the 'information technology' part of the Commission's research and technological development programme."

Already on target

Can you give us some examples of actual progress?

"Of course. On the regulatory side, some positive results have already been attained, such as unbundling the local loop in telecommunications, scheduled for January 2001, or cutting the administrative red tape for allowing security technology to be exported. We have also boosted research on current training and education, and reorganised the actions encouraging the production of the content conveyed and European languages as part of the eContent programme."

Assessing performance

The Member States are also very active in developing the New Economy, thus prompting the next question to Mr Eckert: *How can you ensure that the actions undertaken at various levels are consistent?*

"It is very simple. The priorities outlined in the eEurope plan are linked to common, measurable and checkable objectives, which in turn are linked to deadlines that the Member States have signed up to. This means that the countries in the EU have opted to use a common strategy to progress together towards the Information Society. The effectiveness of this approach is bolstered by the procedure for assessing performance. This is another aspect embodying Europe's added value.

"The EU's main weakness, in this regard, in fact lies in the differences among the Member States. Deciding on a common strategy and common objectives is the only way of ensuring greater consistency. In just one year, the gap in home Internet connections between the most and the least advanced Member States fell from a factor of 17 to 5. Another factor that helps to bring the Member States closer together is the widespread use of mobile telephony in the EU, an aspect that is going to play an increasing role in Internet access and e-commerce."

Common, measurable and checkable objectives. In other words, indicators. An updated list contains 23 key indicators, all quantitative. Detlef Eckert explains how they will be used.

"The indicators and benchmarks exist to measure the performance of the various Member States. This is how it works: the indicators are defined, the benchmarks are established, the figures are collected and then compared and analysed, and then – in the ideal scenario – measures are introduced to remedy any shortcomings that have been revealed. The list of indicators has not yet been completely finalised – there are some that are still open – but it should not be long before we get started on calibrating performance.

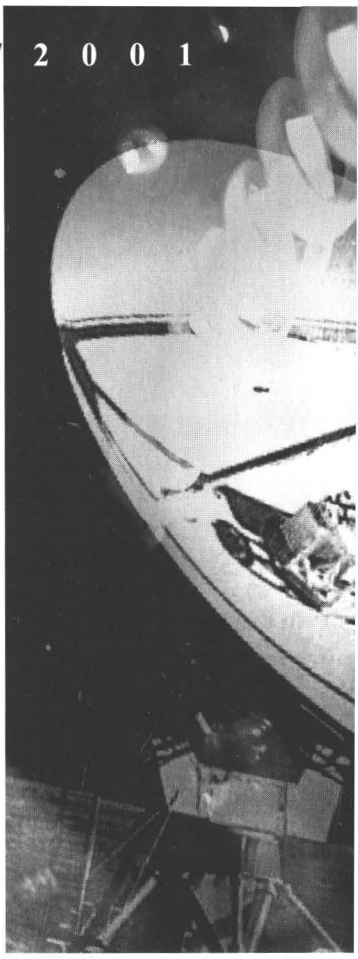
"The 23 key indicators, supplemented by about 30 additional indicators, cover the three main areas of the eEurope plan[1]. The key indicators are all quantitative. The additional indicators are there to provide better coverage of the planned objective, since it is not possible to cover every aspect with a sole indicator, or even solely with quantitative indicators. For qualitative data on people's opinions, we try to get information from secondary sources."

New statistical coverage

Does the New Economy not mean new statistics? In this regard, to what extent do you rely on data from the private sector?

"A good point. They *are* new, at least in the sense that there are hardly any official data at European level, the reason being that some countries are not covered, or coverage does not refer to the same period, or the data are estimates in one case and reliably-based in another, and so on. Gaps emerge. Of course, OECD data can help up to a point – but only up to a point.

"When we defined our list of indicators with Eurostat, the other DGs and the Member States, we did not worry about what was measurable at that time but we focused on what we were going to need. Subsequently, we got rid of some things that are difficult

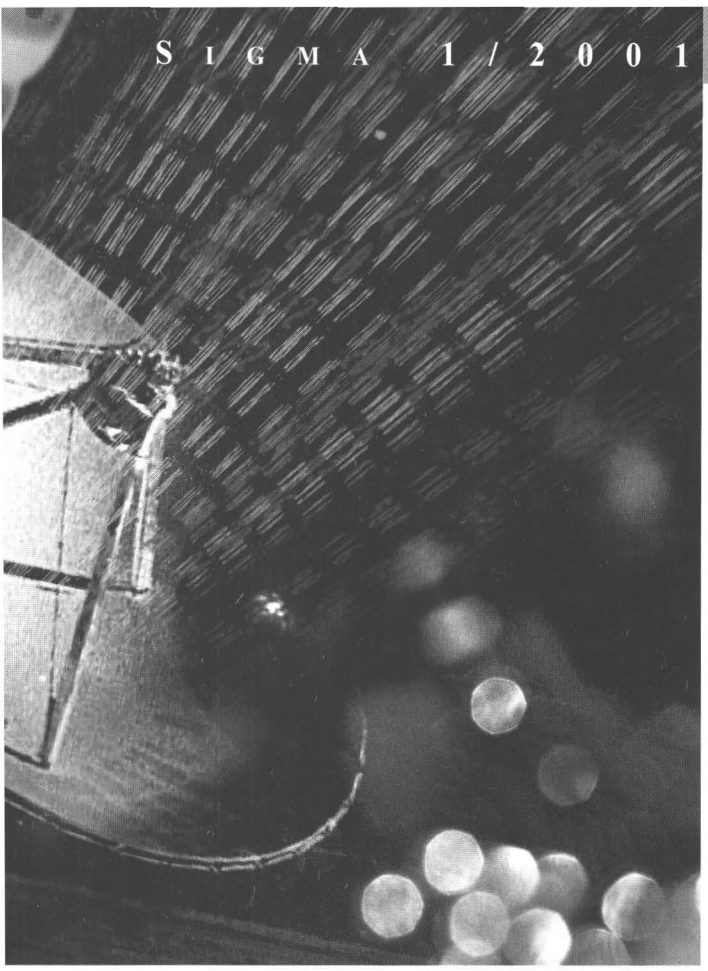


to measure or define. It is hard, for instance, to define a concept of security.

"Data from the private sector give rise to a certain number of problems. In the first place, such data do not necessarily cover the aspects of the New Economy that we are interested in. Secondly, we do not have every guarantee regarding the methodologies employed, which are not always clear to us. We do not know where the figures came from, and private firms are unlikely to tell us. Ideally, we need official statistics supplied by Eurostat or the Member States."

And yet your DG uses data compiled by EOS Gallup, a private firm?

"Granted. But they come from surveys of the Eurobarometer type. The methodology is defined in advance by us, and the data are comparable and consistent. They just do the job for us."



Time pressure

What are the problems you encounter with official statistics, apart from those already mentioned?

"Time. It is the biggest problem. Before you even get the final results on, say, Internet penetration, the figure will have doubled in the mean time. For a transitional period, therefore, we are going to organise market surveys and Eurobarometer-type surveys ourselves. A budget of 5 million euro per year for 2001 and 2002 has in fact been included as part of the Promise programme[2] to finance the work of calibrating performance and conducting the market studies and surveys that are needed."

Isn't it hard to measure things, given that a feature of the New Economy is the speed at which it changes?

"Listen, measurement is a technical problem. If your definition is sound, everything falls into place. It is a bit like software. The important thing is that it should be designed to do the job. Writing out all the program codes is simply a technical problem. Too many people worry about methodology. Once you have defined your indicator, it is just a matter of time and money to come up with a suitable methodology."

But isn't definition where some of the problems occur?

"Okay, there are limits. It is difficult to measure such relatively intangible aspects as security, the impact of the Internet on firms' organisational efficiency, intellectual property rights, entrepreneurship, etc. How are you going to measure the last of these? By counting the number of start-ups? The fact is that an indicator of this kind may depend on other factors such as registration costs or profit potential. In any case, there is probably no need to measure everything."

Statistics in the future

What are the ideal statistics for the New Economy?

"We should end up with predefined pointers for every Member State in the EU, by employing the same methodology to generate the same indicators, and the results should be available instantaneously. I mean, this is the Internet economy.

"People ought to realise this, I do not understand why we have to wait months for official statistics. Firms could send in their data by e-mail. It won't be long before we could even compile statistics without any human involvement. Take production data, for instance. Eurostat ought to be notified and capable of knowing when a firm gets an order, when it starts manufacturing or when it sells or stockpiles what it has produced.

"As soon as suppliers, manufacturers and customers are hooked up through the Internet, it ought to be feasible to install statistical sensors at a few secure access points. The data would then be transmitted and processed automatically without any human involvement. Computer programs already exist that can collect data and check for inconsistencies. Data on production prices and volumes could be gathered in this way. The new XML standard[3] for the Internet will make this kind of operation much easier. In an ideal Web-surfing world, we could use this powerful aid for this purpose."

What role do you see for Eurostat in connection with the New Economy?

"We expect Eurostat to play an important role in supplying macroeconomic statistics on the New Economy. We hope that we can quickly get fairly recent and disaggregated data that will allow us to measure investment in information and communication technologies (ICT). We also want to be able to measure increases in labour productivity and factors of production related to ICT.

"In the case of e-commerce and Internet penetration, we realise that Eurostat is not in a position to help us at the moment. We are in fact working with Eurostat to develop a methodology that will allow us to measure these aspects."

Detlef Eckert concludes by stressing the role of Eurostat. "The quicker we can move the statistical work over to Eurostat, so that we no longer have to rely on Eurobarometer-type surveys, the better it will be. We shall then be able to concentrate on our own work. I really hope that Eurostat will work along these lines." ■

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1) A special Website will be set up to show eEurope performance.

2) Programme for stimulating the establishment of the Information Society in Europe (1998-2002). Originally designed to encourage European awareness of the impact of the Information Society, the Promise programme for 2000-2002 focuses on more precise and tangible objectives that come under the eEurope initiative and include a study and analysis component.

3) XML refers to Extensible Mark-up Language. XML is a method for remembering structured data in a text file. This text format allows the data to be consulted without the program that generated them.

eEurope Action Plan – 23 statistical indicators

Objectives	Indicators	Definition	Frequency
A cheaper, faster and more secure Internet	1. Percentage of the population regularly using the Internet	Any use. No distinction between access points. Population aged 15 and over. Once a week at least.	Every six months
	2. Percentage of households connected to the Internet	–	Every six months
	3. Connection costs	Peak/offpeak rates. Including VAT. (Methodology in preparation)	Every six months
Faster Internet for researchers and students	4. Speed of interconnection and services available between and within research and education networks (EU and worldwide)	Information already available on Dante site. Information on maximum speed of networks to be supplied by Member States	
Secure networks and smart cards	5. Number of secure servers per million inhabitants	Number of servers using applications programs to ensure secure transactions (OECD definition)	Every six months
	6. Percentage of people with security problems when using the Internet	Security problems including credit card fraud, viruses, etc	Every six months
European youth into the digital age	7. Number of computers per 100 pupils in primary, secondary and higher education	Only computers used for teaching purposes are included	Once a year
	8. Number of computers connected to the Internet per 100 pupils in primary, secondary and higher education	See 7	Once a year
	9. Number of computers with high-speed connection to the Internet per 100 pupils in primary, secondary and higher education	High-speed including connection via ADSL, cable, satellite, UMTS and wireless connection. See 7	Once a year
	10. Percentage of teachers regularly using the Internet for subjects other than computing	Use at least once a week	
Working in the knowledge-based economy	11. Percentage of workforce with basic IT training	Percentage of workforce with computer training (Eurobarometer survey "Working and ICT" in progress)	Once a year
	12. Number of places and graduates in postgraduate ICT courses	Universities and colleges of higher education. ICT teaching (definition in preparation)	Once a year
	13. Percentage of workforce involved in teleworking	Teleworking: when an employee uses ICT to perform all or part of his work away from his normal place of work	Once a year
Participation for all in the knowledge-based economy	14. Number of public Internet access points per 1 000 inhabitants	Public access points: public Internet access terminals operated by private or public providers, free or for payment. Excluding cybercafés	Once a year
	15. Percentage of government Internet sites complying with WAI guidelines on accessibility	Definition of Web Accessibility Initiative standard, level "A" http://www.w3.org/WAI/	Regular updating
Accelerating e-commerce	16. Percentage of firms buying and selling via the Internet	To be redefined on the basis of the Eurostat survey on e-commerce	Once a year
Government on-line	17. Percentage of basic public services available on-line	Basic services: to be defined by the eGovernment working party	Every six months
	18. Public use of on-line government services for information and submitting forms	See 17	Every six months
	19. Percentage of public contracts conducted via the Internet	See consultative committee on public contracts	Every six months
Health on-line	20. Percentage of health care service providers with access to the Internet	Number of primary health care providers with office/surgery access to the Internet (data collected in February 2001)	Once a year
	21. Breakdown by content type of Internet use by health care professionals	Pharmaceutical information, epidemiological information, treatment, etc	Once a year
Digital content for global networks	22. Percentage of EU sites in the national top 50 visited	"EU" defined on basis of site name and content	Once a year
Intelligent transport systems	23. Percentage of motorway network equipped with traffic congestion information and management systems		

'Going digital' is probably not the first idea that occurs to those running small and medium-sized enterprises in the European Union. They will not be able to ignore the phrase for very long, however. **PEDRO ORTÚN**, head of the Directorate of Services, Commerce, Tourism and e-Business at the European Commission, tells *Sigma* about the Community's 'GoDigital' plan and a lot more about ...

The digital life of enterprises

Of the 19.5 million SMEs in the European Union, 42% have access to the Internet, but little more than one-fifth of them use the Web for commercial transactions – buying and selling – according to the business survey carried out in 2000 by the European Network for SME Research. If Pedro Ortún and everyone else involved in the 'GoDigital' initiative can achieve the plan's objectives, this figure should show a big increase by 2004.

Bringing SMEs into the digital age

Can you tell us something about the 'GoDigital' initiative?

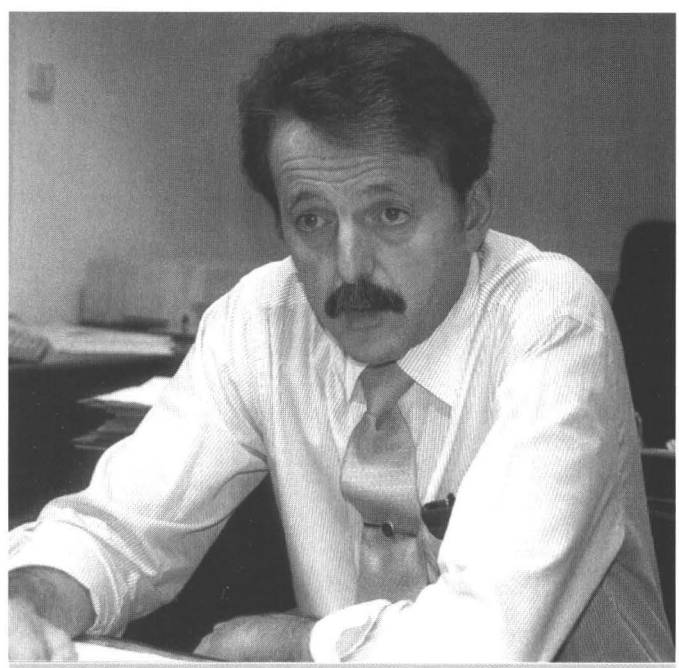
"The 'GoDigital' initiative in fact stems from the eEurope action plan that was decided at Feira last June. Thanks in particular to help from the Information Society DG, we produced a plan for bringing Community SMEs into the digital age.

"The priority areas of the initiative are:

- to promote a favourable environment for electronic business and entrepreneurship;
- to facilitate the take-up of electronic business;
- to improve skills in ICT (Information and Communication Technologies).

"To achieve this, ten or so actions will be undertaken, ranging from measuring the take-up of ICT and e-business through the definition of ICT curricula for industry to the creation of a guarantee fund totalling 1.4 billion euro to encourage ICT investment by SMEs.

"It is an ambitious venture. The idea is that by the end of 2004 the 19.5 million SMEs in the European Union will be capable of using these new technologies in their own set-up and in their relations with customers and suppliers. The success of the eEurope plan will depend to a large extent on SME commitment to e-business."



Pedro Ortún is a specialist in industry. After five years in the research department of the Spanish chemical group Union Explosivos Rio Tinto, he joined Spain's Ministry of Industry and Energy in 1979. As head of the department responsible for relations with the European Communities between 1979 and 1982, he was in charge of the talks on industry during the negotiations for Spain's accession to the EU.

After working for the Spanish Ministers of Industry and Energy between 1983 and 1988, he moved in August 1988 to the European Commission, where he became Director for iron and steel in DG 'Industry'. In July 1990 he took over responsibility for all basic industries in the same DG. Since 1 January 2000 he has been Director responsible for services, commerce, tourism and e-business in the new Enterprise DG.

Role of standardisation

Launched at the start of this year, the 'GoDigital' plan is just one of the activities carried out by the Enterprise DG. The DG in fact cooperates with European standards bodies such as CEN (European Committee for Standardisation), CENELEC (European Committee for Electrotechnical Standardisation) and ETSI (European Telecommunications Standards Institute) on the regulatory and technical aspects of the eEurope action plan. The topics range from business networks to electronic signatures and also cover

the standardisation of information technologies for teaching purposes. A support plan for the eEurope initiative was adopted by these bodies on 28 November last year.

"Indeed, we are going to sign with these bodies a two-year action plan in support of eEurope to make every possible use of standardisation procedures. The development of system interoperability and the promotion of European content for lifelong training and health on-line will be among the subjects tackled. About 12 million euro will be spent on this between now and 2002."

Need for up-to-date information

Dealing properly with twenty-odd million customers requires information that is comprehensive and of top quality. It has always been important for information to be up-to-date, but the New Economy's speedy development makes this aspect especially important.

How about statistical data on the New Economy?

"Any sound policy relies on analysis that is as thorough as possible. In the New Economy, these criteria apply just as much as they did in the 'old economy', except that in the last four or five years the tremendous advance of new technology has given a strong boost to the pace at which economic structures have changed, in the same way as steam power in the 18th century and electricity in the 19th. The big difference is that everything is changing much faster.

"The fact is that at EU level, at the moment, we have no reliable statistics or time series. The first incomplete statistics on e-commerce were published in March 2000 by the United States. I am referring to companies' turnover achieved by electronic means.

"We are also endeavouring to work with the national statistical institutes and with Eurostat to obtain detailed data on the percentage of turnover in specific sectors of activity, the number of workers with ICT training, and investment by sector in equipment and software.

"We do not yet have enough information on these aspects, and I do not mean here the rate of companies' actual take-up of new technologies or the growth by sector of e-turnover. There is more information at the macro-economic level, but the process of compiling official statistics is somewhat slow."

Selective statistics?

If speed is such a priority, why not focus on the bigger Member States for the sectors in question, instead of waiting for every last item of data from every country?

"It is true that some countries are developing faster and that others are lagging behind. This 'selective' approach to statistics would not work, however, if one of the economically important Member States failed to regard statistics on the New Economy as a matter of priority. Without the figures from Germany, for instance, the data would be practically meaningless. The upshot is that we sometimes use estimates produced by private consultants like Gartner or Forrester.

"In fact, we are overwhelmed by the analyses, studies and publications on the New Economy that are coming from these consultancies, most of which are in the English-speaking world. We try to analyse them and to have discussions with their representatives, and we even invite them to meetings so that they can present their findings. The unfortunate fact is that these are the only data that exist, and they are based on surveys, extrapolations and interviews. They are not so thorough as official data, however. I do not think there is any bias in the studies, but they can be somewhat optimistic."

Urgent requirements

What does the Enterprise DG view as the most urgent statistical requirements?

"The most urgent requirements relate to matters that tend to be covered inadequately or with some delay by conventional statistics: i.e. anything to do with employment, training and investment in ICT by SMEs. There are no data on the number of workers trained in ICT, on e-turnover, on SME presence in the e-market. More general indicators are also helpful, such as the number of mobile

Forrester forecasts

In November 2000 the European branch of Forrester, a North American consultancy firm, forecast a figure of 2.6 million euro in on-line sales in Western Europe (EU and Switzerland) over the end-of-year holiday period. Last year the same firm also published its forecasts for e-commerce, both between and within companies (B2B) and in retail trade (B2C). According to Forrester, e-commerce in the United States would rise from 509 billion USD in 2000 to 3 456 billion in 2004, while in Western Europe the figure would move from 87 billion USD in 2000 to 1 533 billion four years later.

Assessing enterprise policy

Wider in scope than the innovation scoreboard, the annual review of the Commission's enterprise policy covers simultaneously entrepreneurship, entrepreneurial drive and market access. About 30 indicators are involved. The data used to construct the basic indicators are not all official or harmonised, and sources such as the private sector, international organisations, national statistical institutes, Eurostat and the Enterprise DG are all used. This initial effort will be followed by others and the subsequent scoreboards will endeavour to improve data on business activity.

phones per household or per firm, or the number of computers per company. Anyway, such indicators are more developed."

Different levels of resources

In this connection, how are your relations with Eurostat?

"On the whole, we have a good relationship with Eurostat. Indeed, we are working with them and the Information Society DG on compiling indicators that will be used to calibrate performance in connection with the eEurope Action Plan (*see article on page 33*). The problem lies more with the decentralisation of the European Statistical System. The Member States are given the task of collecting and preparing data. Some national statistical institutes do a good job, others are not so good. The level of resources devoted to statistics is not the same throughout the EU.

"Even in the case of conventional statistics, such as those on external trade, we still lag way behind the United States. According to the Regulation, they should be available within ten days after the end of the month.

"A few years ago, delays of seven or eight months were not unusual for some Member States. We have now got the delay down to two months. We now have some rough figures at macro-economic level on the New Economy, so that we can compare the EU with the United States and Japan, but when it comes to a more detailed breakdown, there is still a lot to be done." ■

Enterprise policy scoreboard

Indicators	Source	Reference year
Entrepreneurship		
Enterprise volatility	National data	:
Net real births of enterprises	National data	:
Enterprise survival rate after 3 years	Commission calculation based on national data	1998
Time of creditors' claims in case of bankruptcy	UNICE	2000
New graduates in business administration	Eurostat calculation based on WEU data and population statistics	1998
New company registration time	Logotech	1996
New company registration costs	Logotech	1996
Business Angels' activity	European Business Angels Network	1999
Venture capital on GDP	European Venture Capital Association - EVCA	1999
Venture capital investment in technology firms, in GDP		
Initial public offerings	European Venture Capital Association - EVCA	1999
New market capitalisation	International Federation of Stock Exchanges	1999
Companies traded in new markets	International Federation of Stock Exchanges	1999
Entrepreneurial drive		
Number of new graduates in science and engineering	Eurostat calculation based on WEU data and population statistics	1997/1998
Public R&D expenditure on GDP	Eurostat/OECD	1998
Business R&D expenditure on GDP	Eurostat/OECD	1997/98
Share of innovative SMEs in total SME stock	Eurostat, Commission Innovation Survey	1996
Number of high tech patents per capita	Eurostat, based on European Patent Office data	1997
Share of high technology products in total exports	Eurostat and UN COMTRADE database	1999
Installed computer power, per capita	Computer Industry Almanac	1998
Internet penetration in general population	European Information Technology Observatory - EITO	1998-1999
Number of schools connected to Internet	National data	1999/2000
SMEs using the Internet for commercial purposes	SME Observatory, ENSR - Enterprise Survey 1999	1998
Cellular phone subscribers	ITU - International Telecommunications Union	1999
Value of ICT markets to GDP	European Information Technology Observatory 2000	1998-1999
Training opportunities	Eurostat, Labour Force Survey and ENSR Survey	1999 and 1998
Market access		
Trade integration	Eurostat, based on UN COMTRADE data	1998
Value of calls for tender published in OJ as % of total	European Commission's Internal Market DG	1998
Major constraints to business performance as perceived by SMEs	SME Observatory, ENSR Enterprise Survey of 1999	1998
ISO 9000 certificates	ISO Survey	1999

As the EU's financial arm, the European Investment Bank (EIB) finances capital projects to promote EU policies. With its eEurope action plan, the Commission is now addressing the New Economy and encourages the development of the Information Society. *Sigma*'s BARBARA JAKOB spoke to **ADAM MCDONAUGH, CHRISTOPHER HURST** and **PATRICK VANHOUDT** of the EIB to find out more about the measures taken to adjust to current Community policy developments.

EVOLUTION rather than REVOLUTION

What is so new about the 'New Economy' that justifies so much interest in this topic? Christopher Hurst, Head of Division of the Chief Economist's Department at the EIB, tries to provide an answer: "Europe is asking itself why it is falling behind the USA in terms of sustained economic growth that lasted for around a decade there, representing a much longer business cycle than usual.

"This continuous US growth coincides with the take-off of computer technology and the Internet boom in the mid-nineties. What's more, at the micro-economic level, companies are re-organising themselves in an unprecedented way with outsourcing, networking arrangements, and so on. The Internet is, clearly, opening up the market for business and contributing to better competition and higher growth.

"Against this background, Europe, of course, wants to understand the factors behind such growth and is asking itself what it can do better in the future." In response, the EIB implemented the Innovation 2000 Initiative that focuses on the knowledge-based economy.

Under the initiative, the EIB expects to lend 12 to 15 billion euro over the next three years for investments in the promotion of the Information Society, research and development, innovation and competitiveness as well as human capital.

A qualitative shift

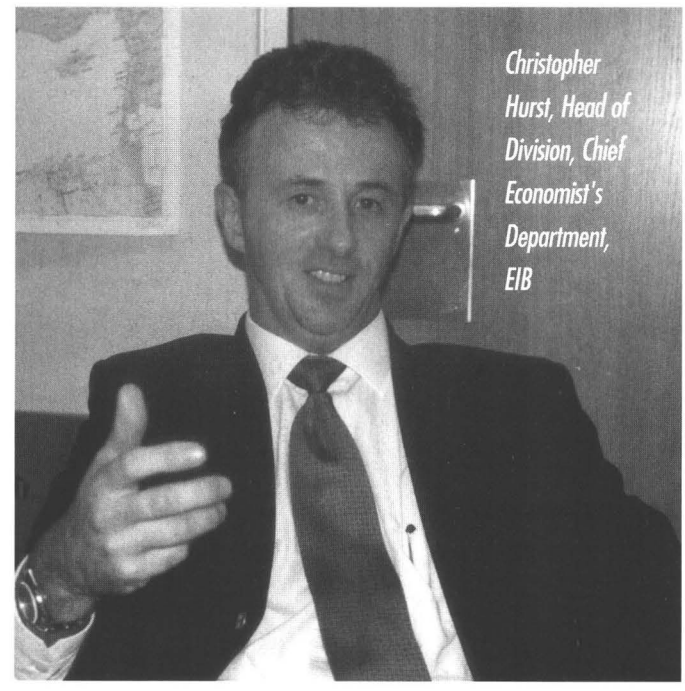
"It is not a programme in the sense of a fixed budget line being allocated to this initiative, nor are there special instruments or special terms being offered. Rather than a dramatic change, it marks a qualitative shift of emphasis in the EIB's normal activities", Adam McDonaugh, the EIB's Head of Media Relations, explains.

"Because of its mandate to finance capital investment that promotes the European Union's economy, the EIB gets involved in a broad range of activities. We have funded telecom networks, R&D and advanced technologies already, well before the Innovation 2000 Initiative. This programme marks an evolution of what was done before."

"It is more an acceleration of interest rather than something that started completely from scratch", Hurst confirms. "Our mandate is to fund projects of common interest or support regional development activities. Insofar as IT becomes an integral part of these goals it obviously becomes our interest as well. It is not something beyond the broader mandate, but rather something that supports a harmonious development within Europe."

Following this "shift of emphasis", as Hurst and McDonaugh call it, the EIB intends to channel financing into five areas:

- **Human capital formation**: financing the provision of computing equipment for schools and universities and also offering loans to support IT training centres.



Christopher Hurst, Head of Division, Chief Economist's Department, EIB

- **Research and development**: co-financing public or private-sector research programmes, corporate investment in R&D, research infrastructure, centres of excellence and measures enabling SMEs to access research programmes.

- **Information and communications technology networks**: financing trans-European broadband, multimedia networks, and physical or virtual infrastructure providing local access to such networks, especially in the Union's less advanced regions. The Bank will focus its lending in this field on innovative technology projects such as ADSL, xDSL and UMTS[1].

- **Diffusion of innovation**: financing 'on-line healthcare' services and the use of information technologies to bring Europe's citizens closer to local authorities and public services; helping to equip companies, especially SMEs, with advanced information technologies.

- **Development of SMEs and entrepreneurship**: strengthening venture capital support (via the European Investment Fund – EIF) for the development of innovative SMEs, fostering science parks and company incubators, and launching new products tailored to the business of very small enterprises.

Sound statistical basis

The successful financing of capital projects depends on a number of factors, one being a sound basis of statistical information. The first set of information required relates to project appraisals. The micro-level data used to consider the various projects come from a variety of sources, including the sector specialist who knows where to draw information for a specific small sub-sector, industrial organisations and the project promoter himself.

The second set of information, i.e. macro-economic data, is used to understand the changes within the economy and the role of the New Economy within this development. For this the EIB relies mostly on Eurostat and OECD data.

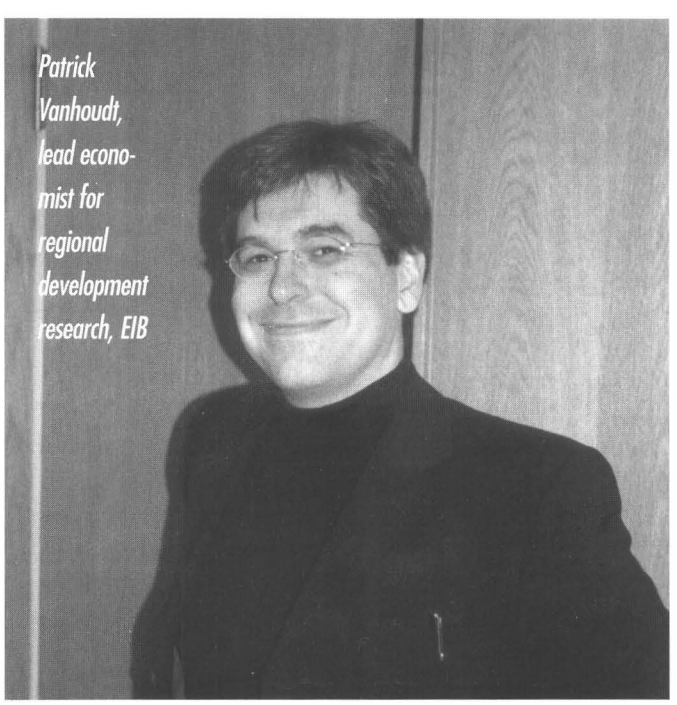
For Patrick Vanhoudt, statistics are daily bread for his work as lead economist for regional development research within the Chief Economist's Department: "We do have physical indicators at our disposal: the number of computers per worker, the number of mobile phones in a given country, etc."

Investment or expenditure?

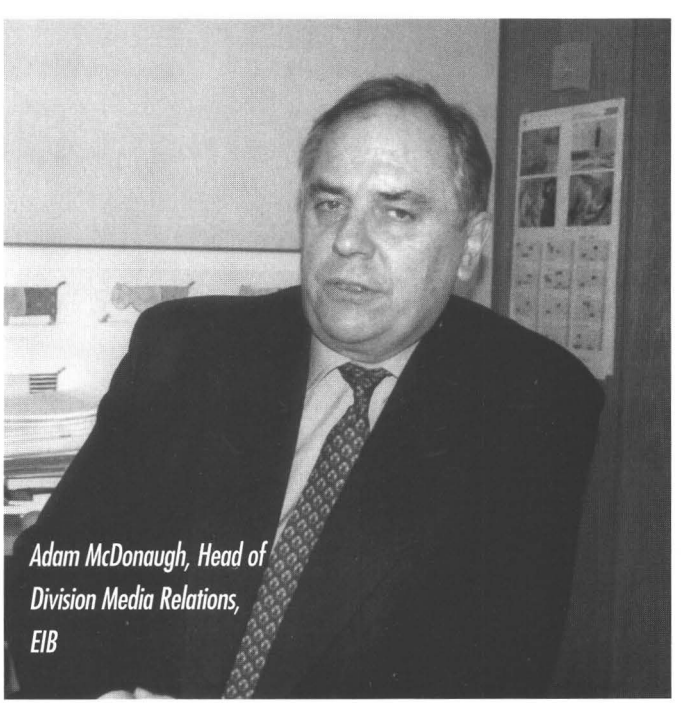
"When it comes to investment data, however, my first observation is that the double dots for 'data not available' predominate. It is not clear from the data so far how much Europe is, in fact, investing in new technologies, IT or communication equipment."

Although, as Hurst says, the OECD and EITO (European Information Technology Observatory) make substantial efforts in collecting these data, major problems remain to be solved. "People are progressively realising that software is an investment, not an expenditure. However, national accounts have only recently been adjusted to re-classify outlays for software as investment, rather than intermediary consumption."

Linked to this issue is the question of depreciation. "If you want to know the net effect of investing in ICT you need to know how fast it depreciates", Vanhoudt explains. "With new software packages coming out every six months and a new computer generation land-



Patrick Vanhoudt, lead economist for regional development research, EIB



Adam McDonaugh, Head of Division Media Relations, EIB

ing on the market every year, equipment depreciates very rapidly."

"This information is vital to understand how the capital stock develops", Hurst affirms. "One euro invested in computer hardware this year may completely disappear in two years' time. Whereas if you invest that same euro today in a manufacturing plant that will depreciate over the next 15 years you will still have a capital stock of more or less one euro two years from now.

"The regional allocation of investment in a given country would also be highly desirable information", Hurst continues. "The national aggregate may be swamped since the activity in the ICT sector is often concentrated in certain parts of the country. Information about regional concentration and how it changes is a precondition to support the development of areas lagging behind."

Vanhoudt would also like to see a price index for ICT. "While in the US a complex system called 'hedonic pricing' is in use, we still have a very conservative system of average producer prices for these kinds of capital goods in Europe which does not really take into account quality changes. That makes comparisons of real investment extremely difficult."

Another difficulty, typical of an emerging topic like the New Economy, is differing definitions or even the lack of any definition. The EIB's experts strongly opt for standardised international measures to ensure that apples are really compared with apples.

In addition to these basic data requirements, Vanhoudt throws some more questions on the table: "What is the impact of the New Economy on employment? How does it affect inequalities within the EU? To what extent are these inequalities going to be reduced due to new technologies? Or do we have to face the fact that inequalities may increase?"

These questions are waiting for a response and it is up to statistics to provide some answers. ■

1) ADSL - Asymmetric Digital Subscriber Line; xDSL - Digital Subscriber Loop; UMTS - Universal Mobile Telecommunications System

Mobilising resources for crucial EU objectives


The EIB offices in Luxembourg

With its banking resources, the EIB supports projects which give practical expression to EU objectives. More concretely, its aim is "to contribute towards the integration, balanced development and economic and social cohesion of Member Countries," according to the EIB's website (*http://www.eib.org*). Like a bank, the EIB provides medium- or long-term loans, thus co-financing projects which help increase the competitiveness of the European economy or which support regional development. In 1999, total lending amounted to well over 30 billion euro.

Typically, a project promoter presents a project to the EIB which then decides whether the project is sound and whether the loan application is acceptable. Although no individual loan applications from SMEs are considered, their projects may also derive some benefit from funds in the EIB's so-called 'global loan' instrument. Here, an intermediate bank receives a credit line which it then redirects to small- and medium-scale projects. In this case, the intermediary bank makes the credit assessment.

The EIB's global loans, directed to the SMEs, account overall for around 25% of the bank's total annual activities.

Apart from long-term loans, the EIB has, in the past, issued a certain amount of risk capital. The bank's activity in support of venture capital financing has been expanded as part of the Innovation 2000 Initiative. However, for simplicity's sake and to better distinguish between these two completely different instruments, it was decided that risk capital management should be entirely carried out by the EIF (European Investment Fund) affiliate.

The EIF, whose capital is jointly owned by the EIB, the European Commission and commercial banks, operates as a fund of funds participating in the capital of venture capital funds around Europe, which, in turn, support the start-up or the early-stage phases in technology companies with strong growth potential. Two billion euro are being provided as risk capital by the EIB, which recently became the majority shareholder of the EIF.

The EIB, being the EU's financing institution, continuously adapts its activity to developments in Community policies.

EITO, the European Information Technology Observatory, has earned itself great respect by successfully providing an exhaustive overview of the European market in information and communications technology (ICT). *Sigma*'s BARBARA JAKOB spoke to **AXEL POLS** from BITKOM, a member of the EITO Task Force.

Blazing the NEW ECONOMY trail

In the early nineties, a German-Italian initiative bringing together ICT associations and trade fair enterprises provided the stimulus for the production of an Italian-inspired yearbook of information technology at European level. This prompted the creation of EITO, representing the interests of European industry.

EITO now has five members: BITKOM, the European industry association EICTA[1], and three trade fair enterprises, one each from Germany, Italy and Spain. EITO is also assisted by sponsors and draws on the support and active cooperation of the European Commission and the OECD.

"What makes EITO special is that it brings together experts from industry, politics and commercial market research at European level to analyse market trends and the development of the internet industry in Europe", says Pols.

"This cooperation guarantees that the final product, the EITO yearbook, meets the need of industry for up-to-date and detailed data, whilst taking due account of the wishes of politicians and other users for data that are comparable and consistent over time. Whilst the individual enterprise tends to look to the future, concerning itself with yesterday's data at best, it is often important in the field of politics to be able to make comparisons in the longer term."

EITO manages to achieve this balancing act between a snapshot picture, a forecast and time series that are consistent over several years, although the rapidly changing world of informatics and technology means that adjustments sometimes have to be made to existing

European Information Technology Observatory

On 28 February, EITO published the latest edition of its yearbook in time for the Cebit computer trade fair in Hannover. In addition to a detailed statistical section, each issue contains analyses and studies, this year on:

- ICT skills in Western Europe,
- The evolution of the European e-economy,
- The ICT market in Europe,
- The technological evolution of ICT and standards,
- Mobile e-commerce,
- The impact of e-commerce on five vertical sectors,
- Measuring the Information Society.

Statistics cover the 15 Member States of the EU, Norway and Switzerland, seven Eastern European countries (the Czech Republic, Hungary, Poland, Russia, Slovakia, Slovenia and Estonia) plus Turkey, Israel and Egypt.

EITO is unique – nowhere else is there such a comprehensive collection of topical studies and statistics on the European information and communications technology market as a whole. The EITO yearbook is produced in close association with the EITO Task Force and various market research companies, and cooperation with the IDC (International Data Corporation) is of special importance.

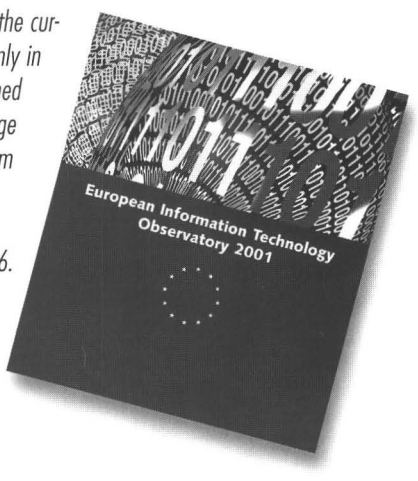
The Task Force comprises market research experts and statisticians from eight European countries who are generally recommended by national associations and who work in an honorary capacity. It also includes representatives from the European Commission's Information Society and Enterprise DGs and from the OECD. The Task Force designs the publication and compiles the individual contributions in conjunction with the market research companies, which are commissioned to carry out special studies.

The regular involvement of the market researcher IDC in the compilation of comprehensive statistics ensures that methods are uniform and data comparable for all countries. National and technology experts on the Task Force evaluate the data and make corrections as and when necessary.

The bulk of EITO's funding comes from member and sponsor contributions. The Commission contributes to EITO by partly funding special studies, in addition to which there are the proceeds from sales of the yearbook and the CD-Rom.

An update containing topical data is published each autumn for the Italian IT trade fair SMAU.

Further information on the current edition of EITO (only in English) may be obtained from the EITO homepage (www.eito.com) or from the EITO head office: +49 69 242416-20; Fax: +49 69 242416-16.



definitions and market classifications.

As Pols puts it: "In our regular statistical reports, we make every effort to distinguish between temporary phenomena and significant market trends, as only the latter can lead to changes in the market classification used."

Boundaries are blurring

"A good example here is the increasing convergence of the IT and telecommunications markets. This challenges traditional market definitions in some areas", explains Pols. "The distinction between IT hardware for data communications and the telecommunications infrastructure for speech communication is quickly becoming outdated. In any case, the distinction has been somewhat arbitrary since the arrival of digital technologies. EITO reacted by adjusting market definitions accordingly."

There is still no fixed conceptual structure for the New Economy, which is why it is important that the concepts used be as transparent as possible, though the sheer number of definitions currently in circulation initially leads to confusion. In order to avoid ambiguity, EITO devotes a separate chapter to the detailed explanation of the methods and definitions used in the market surveys.

Recording changes in quality

Another problem, in Pols' view, is how the changing quality of products and services affects measures of prices and productivity and, more generally, how statistics measure the impact of the New Economy on economic growth, productivity and prices.

The method of price adjustment is crucial because, in reality income and consumption would be higher at a level adequate to the overestimation of the inflation rate. As the consumption of private households is a major component of gross domestic product, the rate of inflation has a direct impact on the statistical measurement of economic growth.

In the USA and some European countries, use is made of hedonic techniques[2] to provide a better measure of changes in the quality of products, particularly personal computers, in the price index. In Germany there was recently a detailed debate on this subject, sparked off by discussions in the United States.

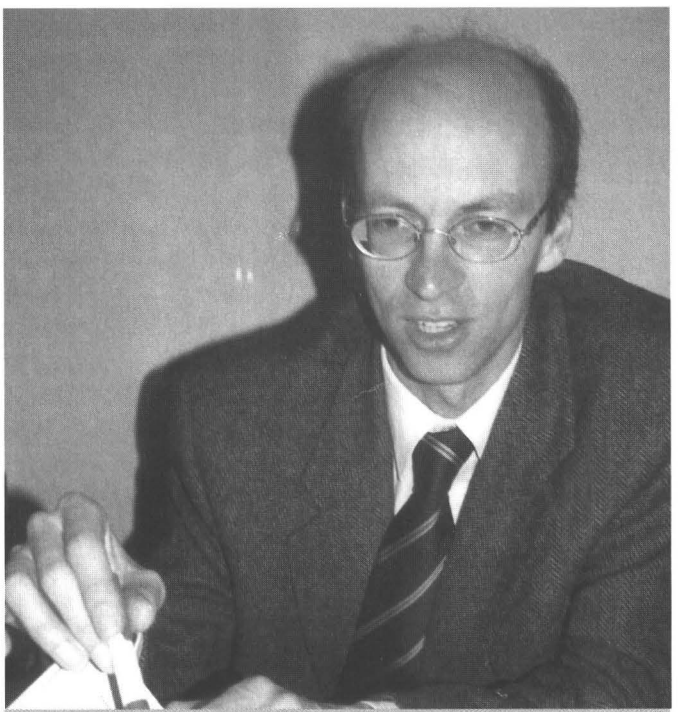
"Various studies produced estimates of what Germany's economic growth would look like if US methods were applied. The conclusion was that inflation might be overestimated, and that productivity and economic growth may also therefore be higher than current figures suggest.

"This is significant in that these figures ultimately provide a basis for political decisions in the field of, say, European monetary policy, as well as for business decisions, where the attractiveness of a given location and overall economic development come into the equation."

The New Economy also raises other questions about the suitability of statistical measures. "There is much talk of growth rates in the field of e-commerce", says Pols, "but nothing has yet been said about the extent to which Internet trading generates additional value added and the extent to which orders on paper are simply being replaced by Internet orders. This is another question that we should address in more detail."

BITKOM statistics

Pols encounters methodological problems similar to those dealt with in the EITO task force in his work in BITKOM's working party on market research and statistics. This working party, which basically brings together representatives from companies in marketing,



Axel Pols (34) studied economics in Bonn and Constance before doing an MA in Development Economics at the University of East Anglia. As part of his doctoral thesis for the University of Göttingen on the impact of external trade liberalisation on the industrial sector in Argentina, he spent time in Buenos Aires before starting work, in 1999, as a consultant in market research and external trade for the information technology association of the VDMA, the German Machinery and Plant Manufacturers' Association. He now works in the same capacity for BITKOM in Berlin. Since 1999 he has been a member of the EITO Task Force, a commitment he was keen to take on given his international background.

market research and strategic business planning, regularly analyses sectoral trends and compiles its own statistics on developments in ICT turnover in Germany. The surveys conducted by BITKOM focus primarily on key indicators such as trends in turnover and employment, and provide information on factors stimulating or hampering growth.

"Of course, it isn't easy to paint a conclusive picture of the branch as a whole on the basis of a business survey of members of the association" explains Pols. "However, our surveys do allow us to draw additional conclusions about the current status of, and prospects for the German ICT branch. Additionally, we make use of official statistics – as far as available – on, for example, employment, output and external trade."

Major demand for information

Since official statistics are currently able to provide very limited coverage of the New Economy whilst public demand for such data is increasing all the time, the two members of BITKOM who deal with statistics find themselves fielding an ever greater volume of general queries. "Obviously it is in our interest to disseminate information about our branch", says Pols. "On the other hand, we cannot allow ourselves to become an information desk for the general public – our primary goal is to serve our member companies."

Which is why Pols would like to see official statistics provide basic coverage for the field of new technologies and the New Economy as soon as possible. Likewise, he sees Germany's decision to build up a body of services statistics starting this year as "long overdue".

"Obviously, it would be nice if official statistics could provide as detailed and accurate a picture of services as they do of agriculture or other branches of industry that have been around for decades. But that's just wishful thinking. What I *would* like to see", he continues, "is a genuine cost-benefit analysis carried out on surveys, so that statistics are not just produced because they always have been."

Pols also warns against underestimating the problem of official statistics being accepted by enterprises. "Many feel that completing a large number of different questionnaires is a burden for which they get little or nothing in return. In our branch in particular, where there is a high degree of computerisation and internal operations are often largely digitised, enterprises react very negatively to the laborious completion of forms by hand. In the long term, we can only be sure of being sent reliable information if we can make enterprises understand why their data are important and if data transmission is efficient."

Pols would also like official statistics to be more up to date. "The brisker the pace of technological development and market changes, the more important it is to ensure that data are topical. Statistics that could in theory be of interest often become less relevant simply because the information they contain is out of date."

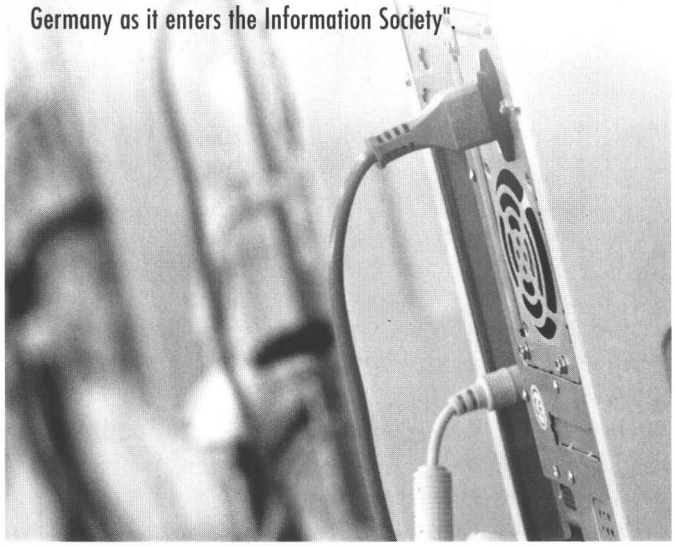
In terms of greater topicality and better acceptance, new technologies, particularly electronic data interchange, may well prove the answer we've all been waiting for. ■

BITKOM
Connecting visions – creating solutions

BITKOM is the German federation for information technology, telecommunications and new media. It represents more than 1 200 enterprises in the field of hardware, software, services, multimedia and online content. Together, these companies generate more than 230 billion DM of turnover per year and employ some 700 000 people.

BITKOM provides its members with working parties, seminars, workshops, joint stands at trade fairs, market research and consultancy services.

The aim of BITKOM, as stated on its Website at www.bitkom.org, is "to provide sound representation of the interests of the ICT industry amongst political decision-makers and actively support Germany as it enters the Information Society".

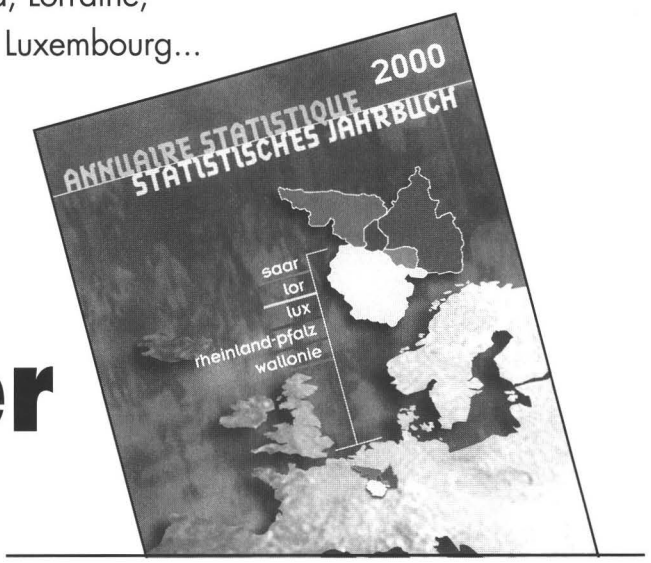


1) EICTA: European Information and Communications Technology Industry Association

2) Hedonic techniques use in regression analysis to break down a product into basic product characteristics and determine the price of the commodity in terms of a combination of these characteristics.

GUY ZACHARIAS of Statec Luxembourg describes the outcome of rewarding collaboration by the regions of Saarland, Lorraine, Rheinland-Pfalz, Wallonia and the Grand-Duchy of Luxembourg...

Statistical yearbook for a cross-border region



Since 1970, the statistical offices in the major region around Luxembourg have worked together in inter-institutional cooperation with the aim of compiling relevant and comparable statistics on this major region.

Four EU Member States are involved: Germany, France, Luxembourg and – since 1994 – Belgium.

The area contains five geographic entities that are quite different and distinct:

- Lorraine, a French region;
- Grand Duchy of Luxembourg, a sovereign state;
- Saarland, one of the Bundesländer;
- Rheinland-Pfalz, another Bundesland;
- Wallonia, a Belgian region.

After a long period of preparation involving the study of the statistical systems and consideration of the availability and comparability of the variables, Saarland took the lead in publishing the first cross-border statistics in 1978.

Subsequent efforts resulted in the publication of a quarterly note on short-term trends between 1984 and 1990. Because of the small number of variables offered and their rather simple presentation, these publications aroused only limited interest.

New impetus

In 1991, cross-border statistical collaboration was given new impetus. The directors of the statistical offices met and decided on an ambitious publishing programme, designed to meet the increasing demands voiced by politicians, research workers, businesses and consultancies.

The programme has led to various publications (all in two languages: French and German):

- A statistical yearbook designed to provide detailed information on economic and social conditions and trends in the major region and its individual components.
- A free brochure providing general statistics and a brief description of the regions.
- A portrait of the major region, an offprint of Eurostat's *Portrait of the Regions*, with information on the components of the major region, together with a general summary chapter.
- A rapid short-term indicator showing the monthly changes of the main manufacturing variables.
- An economic and social atlas illustrating sub-regional features and indicating major historical events, changes and relationships.
- Since 1998, a Website (www.grande-region.lu; www.grossregion.lu) has been made available to the public.

To ensure the continuity of the publishing programme, the directors of the five statistical offices involved meet once a year to decide what needs to be done. They have set up an expert working party, which is responsible for collecting data, harmonising concepts, producing publications, supervising public relations and generally organising any work that is related to the joint activities of the five statistical offices.

The working party's most recent accomplishment is the statistical yearbook for 2000.

Reference work

The fourth edition since 1992 contains more statistical data than ever. Produced in French and German, its 148 pages provide comparable data on the economy, demographic and social conditions, standards of living, the environment and other features of the five regions. The data also allow the major region to be compared with the rest of the European Union.

The 2000 yearbook reveals a lot of facts and comparisons that cannot be found in the statistical offices' national or regional publications. For example, it reveals that the major region is home to 11 million people and covers an area of more than 65 000 km². By way of comparison, Latvia has 2,4 million inhabitants in an area of 64 600 km² and Hungary 10.3 million inhabitants in an area of 93 000 km². With a gross domestic product of more than 200 billion euro, the major region accounts for nearly 3% of the wealth of the EU.

Sharing experience

The working party on the major region's statistics currently comprises representatives of the Statistisches Landesamt Saarland (Karl Schneider), INSEE Lorraine (Chantal Cocher), Statec Luxembourg (Guy Zacharias), the Statistisches Landesamt Rheinland-Pfalz (Peter Luebbers) and the *Service des Etudes et de la Statistique de la Région Wallonne* (Jean-Paul Duprez). They are responsible for all matters concerning cross-border collaboration and are ready to exchange ideas with others involved in similar projects. ■

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An International Conference on Quality, organised by Statistics Sweden and Eurostat, will be held 14-15 May 2001, in Stockholm. The conference is part of an effort to lay the foundation for a joint approach towards achieving increased quality within the European Statistical System.

INTERNATIONAL Conference on Quality in Official Statistics

During the last decade quality issues have become increasingly important to National Statistical Institutes, Eurostat, and other statistical organisations all over the world.

Today, quality in statistics is no longer just an accuracy issue. The concept is much broader than that. Excellence is the ultimate aim. With a good management of quality, that includes customer focus, process orientation, teamwork, and a good grip on organisational performance, continuous improvement will follow. When statistical processes become more efficient, there will be room for less expensive and higher volume of work.

The goal of the conference is to bring together people and papers representing the current thinking throughout the world on quality issues within official statistics.

A special feature of the conference will be the presentation and subsequent discussion in a number of sessions of the results of Eurostat's Leadership Group (LEG) on Quality.

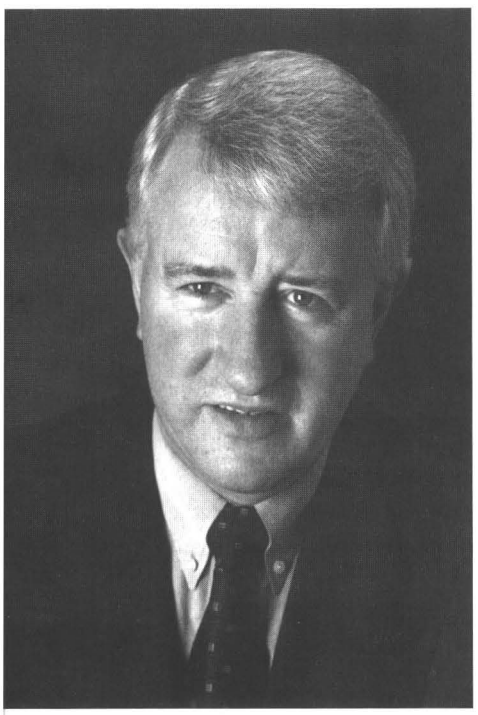
Around 450 people are expected to attend the two-day conference, which will gather together representatives from official statistics from EU countries, the USA, Central Europe and Asia and also from international organisations such as UN/ECE (UN-Economic Commission for Europe) and the International Monetary Fund (IMF) as well as from private enterprises and universities.

Approximately 120 papers will be presented during the 39 sessions, dealing with a variety of quality issues, namely:

- quality management models,
- product and process quality,
- measuring quality,
- auditing and self-assessment,
- evaluation,
- quality and customers,
- customer satisfaction surveys,
- leadership,
- current best methods,
- documentation,
- quality and costs,
- continuous improvement.

Further information as well as the preliminary conference programme are available on www.q2001.scb.se where you can also register. For further inquiries, you may also contact the conference Chair Lars Lyberg at lars.lyberg@scb.se. ■

DONAL GARVEY
new head of Irish CSO
by Kevin Moriarty



Following the retirement of Donal Murphy who headed the Irish Central Statistics Office (CSO) since 1991, Donal Garvey has been appointed as the new Director-General. The mandate will last for seven years.

Donal Garvey (53) graduated in 1968 with an M.Sc. (Mathematics and Statistics) from University College Cork. He also obtained an MSc (Management) from Trinity College Dublin in 1995. He joined the CSO in 1968 and has been involved in most areas of official statistics at one time or another. He was promoted to Senior Statistician in 1981 and to Director level in 1989. He has a keen interest in management reform issues in public administration. His private passions are hill-walking and Bridge. As a real Bridge enthusiast, he has on many occasions represented Ireland in European, Olympiad and World Bridge championships.

Career Outline

In his first ten years with the CSO, Garvey was involved in industrial and construction statistics. In the mid-1970s he introduced the monthly industrial inquiry and, subsequently, worked on demographic and labour market statistics. Looking back, he says "organising the traditional-style census of population posed some of the most complex but ultimately very satisfying challenges of my career". In 1991, the censuses of population and agriculture were organised as a joint field operation.

His special interest lies in labour market statistics and, in 1982, he actively participated in the 13th Conference of Labour Statisticians which formulated the current ILO definitions of employment and unemployment. He introduced the annual labour force survey in Ireland in 1983 and was subsequently responsible for converting it to the quarterly national household survey in 1997.

From mid-1991 to 1994, he was involved in upgrading the resources allocated to the national accounts and balance of payments (BOP) work in the CSO. "In 1991 we reversed an earlier recommendation of an Interdepartmental Committee and decided to develop our BOP statistics on the basis of surveys; this has proved to be a good decision" he says.

Following a Government decision to decentralise public administration, he coordinated the move of a large part of the CSO to Cork in January 1994. He himself moved to Cork and will continue to be located there as Director-General. Over the past few years, he has supported further development of service sector statistics, which – as in the case of many countries – are still underdeveloped in Ireland. He has also been heavily involved in discussing new approaches and organisational restructuring with staff representatives.

European Statistics

He attended his first Eurostat meeting in November 1971 and remembers the first DGINS (directors-general of national statistical institutes) conference he attended (Dublin, 1974). Ireland's membership of the EU brought a lot of pressure on the CSO in the 1970s. He freely acknowledges that EU membership and Eurostat support have been very beneficial for the development of the Irish statistical system.

The cross-fertilisation of ideas in the ESS and the positive commitment of the NSIs and Eurostat is a great strength of the system. However, he believes that Eurostat, at the behest of the Commission, often presses for unnecessary details which exacerbates the response burden and publication delays. He also feels that it sometimes tends to propose 'best practice' country solutions which are perhaps not really necessary. "The differentiated development in many statistical fields in all our countries simply mirrors the various socio-political priorities in our different histories. I do not automatically agree with the idea of proposing 'Rolls Royce type solutions' in all fields of statistics at European level – the system becomes too expensive."

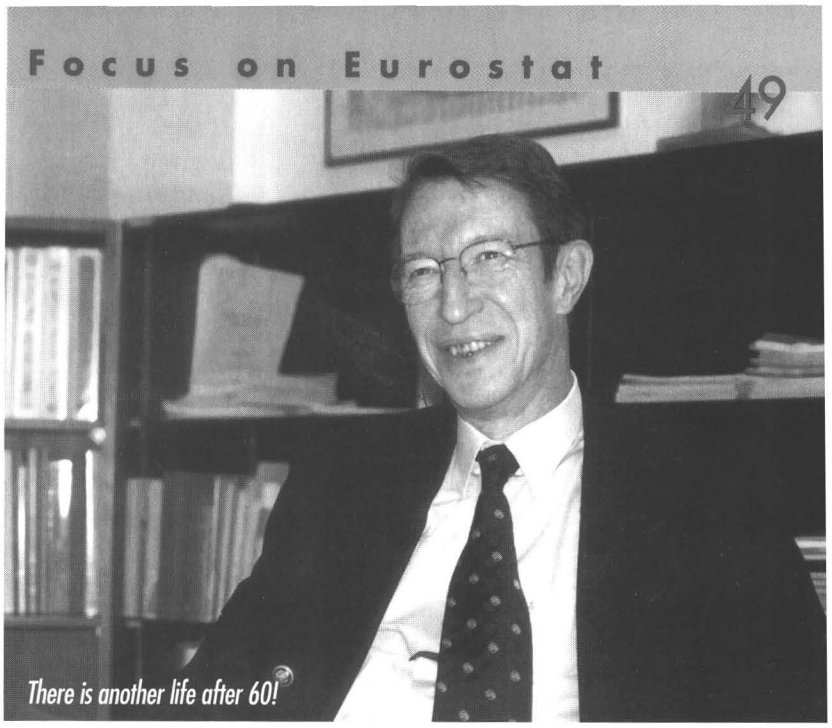
Garvey's priorities for Irish Statistics

There will be discussions with staff to proceed with the ongoing organisational change at the CSO. Another important priority will be to continue aligning the structure of the Office and the IT systems with statistical business processes. "We have recently agreed on an IT strategy with the staff. This will take two or three years to implement", Garvey says. He also adds that more resources will have to be directed at quality assurance and that work is necessary to develop better management information systems.

Macro-economic and wages statistics will see further development, as indicated in the national response to the action plan for EMU statistical requirements. Also, much of the current political debate in Ireland revolves around social inclusion and this issue will require further development of social statistics. The quarterly national household survey has the capability to be a 'fast response' vehicle for some likely demands. Additional regional statistics are required following the country's split into two NUTS2 regions. And further development in services statistics will take place. ■

After a lifetime career at Eurostat, **ALAIN CHANTRAINE** retires at 60. He spoke to *Sigma*'s GLEN CAMPBELL about the last 38 years: his role, the evolution of the European Statistical System and Eurostat, future challenges...

Statisticians can dance too!



There is another life after 60!

Alain Chantraine started as an administrator in Eurostat at 22 in 1962 when European integration and the European institutions were still in their infancy. Since then, and in various positions, he has been a team player contributing to the development of not only Eurostat, but also the European Statistical System as a whole. Indeed, he helped lay their solid foundations – the quality, stability and stamina of which are vital to future success.

Mr Chantraine, what has been the main thread throughout your career?

"I have been fortunate to be able to work on infrastructure aspects and especially their start-up. I helped set up the national accounts system, worked on the harmonisation of nomenclatures as well as on Information Technology and database management.

"The dissemination of information has also been a constant. In recent years I have particularly got my head down to statistical legal bases, future planning, management of the European Statistical System (ESS) and launching Eurostat's corporate plan."

What have been the most difficult moments?

"In the early years of European integration, our work was mainly based on gentlemen's agreements between the six founding members. With the oil crisis, economic slowdown, enlargement and far-reaching discussion on the future of European integration came periods of stagnation.

"Every time Eurostat asked for more, there were two main questions asked: What is it for? And how much will it cost? Although sometimes pertinent questions, they put a break on development.

"This lasted until the mid-80s when, corresponding with the more general boost to European integration, the completion of the Internal Market and the introduction of a single currency, we started to pick up quite a pace."

What were the happiest times?

" ... when, after years of debate or stagnation, we finally pulled something off like the adoption of a new Regulation, we would get out the champagne and toast!

"More generally speaking, I have benefited from the sense of community and teamwork that statisticians enjoy. We also know how to take to the dance floor and have a good time! It was a must in the social programme of Directors-General meetings!

"Part and parcel of European integration is working with other cultures and learning from our differences... "

What were the most remarkable changes?

"When statistics came to be considered as a public good and play an important role in the decision-making process, we built up an information and dissemination policy with accessible and attractive publications, a press department and a datashop network delivering statistical information to the public – elements which have been playing an increasing role in ensuring Eurostat's success."

In your opinion, how have Eurostat and the ESS improved?

"In the early nineties, there was a transition from gentlemen's agreements to legislative bases; relations and initiatives in the ESS therefore became a legal matter and much more structured compared to the early days.

"But the new system soon gave way to conflict because Eurostat's proposals were deemed too detailed and Member States were hesitant. With a boost in European integration alongside Eurostat's efforts, we fostered a cooperative environment: matters were no longer a problem for Eurostat, but for the ESS as a whole.

"We had to be imaginative in our working methods to encourage cooperation and invented certain methods such as electronic pre-consultation, leadership groups and a partnership group."

Which challenges are ahead?

"The challenges are enlargement, the competitive role of Information Technology and the delegation of tasks either to Member States, other Commission services or private firms.

"Eurostat must always be on the ball and anticipate future events, ready to jump into action. If our work is not fit for the task, it risks going elsewhere.

"In addition, it is essential to work with other Commission services in Brussels on technical issues and on more global Commission questions – we at Eurostat must not be labelled as Asterix and his 'Gauls' in their corner. "

Is there another life after 60?

"Most definitely! First of all, I plan to relax, sleep for a fortnight and then get down to some concrete projects. I want to get back to horse riding, to read, visit exhibitions, go to concerts and try my hand at writing – all the things I have neglected in the past years.

"Although I shall be spending my retirement between Luxembourg and Nice, I hope to return to Eurostat on training initiatives for the Candidate Countries. I will also write about European affairs for a weekly newspaper." ■

Quality in statistics is inextricably linked with the quality of the people engaged in the production process. It seemed therefore natural that the key players in human resource management and development should wish to share and exchange experience. This led to the creation of a new Task Force on Human Resources in the European Statistical System.

QUALITY PEOPLE for QUALITY STATISTICS

by Alan Clarke

The scale of change accompanying European integration and expansion and the growing demand for new and more reliable statistical data provide the impulse to raise performance and effectiveness, also in the field of human resources.

New competences, new structures

The pressures of change not only bear on the bread-and-butter zone of statistics. Quite a number of statistical institutes are experiencing structural and organisational changes, some the result of internal reform, others induced by external forces. Often they are accompanied by a sizeable reduction in staff. Also new working techniques and technologies are affecting the content and structure of work, creating a need for new or transformed staff competences.

Similarly, the European Commission and, in consequence, Eurostat, are in the midst of a vast reform process which again will have substantial repercussions on human resource management and development (HRM/HRD).

A new task force is created

Such were the preoccupations leading to the creation of the new Task Force on Human Resources. *In the panels on page 52 participants voice their expectations and hopes in this new Task Force.*

In his opening address at the initial meeting last November, Yves Franchet, Director-General of Eurostat, explained that although vital for the formulation of many policy decisions in the European Union, statistics as an entity do not occupy a front line position in the political arena. It is essential, therefore, that the national institutes and Eurostat demonstrate the political significance of their work through the quality of the statistics they produce and consequently through the quality of the people they employ.

Ten national institutes joined Eurostat to form the new Task Force. The purpose of the initial meeting last November was to gain a more exact view of their concerns and interests, a better feel of the significance attached to them in the different institutional environments, and also a greater awareness of the NSIs' individual strengths that may serve as examples of good practice. The participants also decided to define a first action programme for the year 2001 (*see panel opposite*).

Managing change

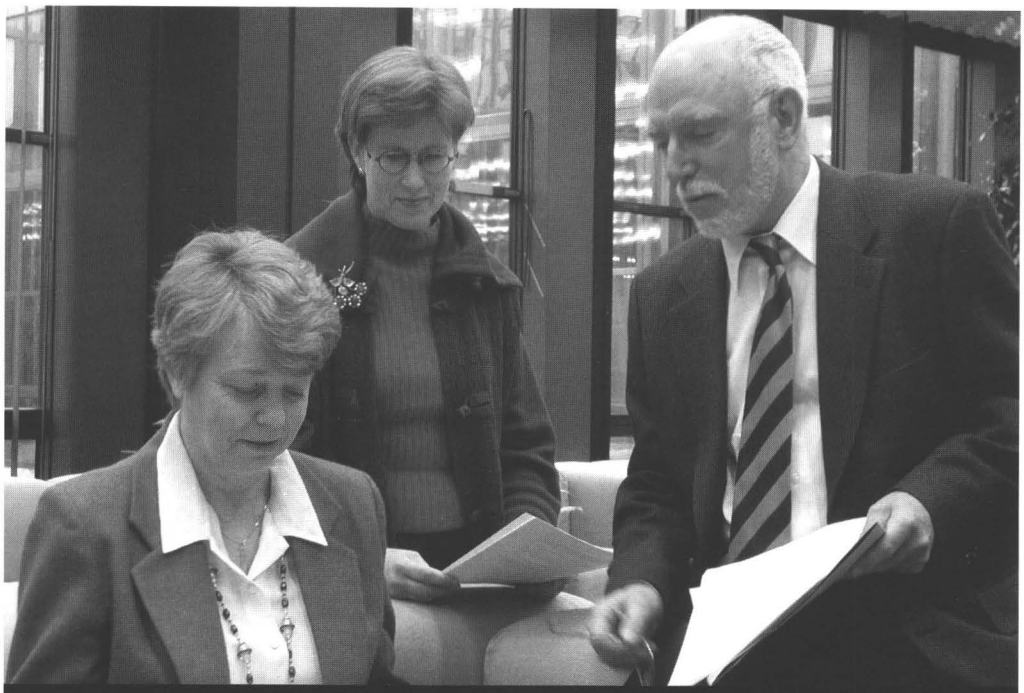
A major area of concern for the participants was making people fit for change. New corporate strategies are influencing the NSIs'

Ovidio Crocicchi (right), together with Eurostat Director-General Yves Franchet, recently took over the Eurostat unit 'Administration and staff'. He greatly welcomes the creation of this new network of exchange.

organisational structures, while external reform, initiated, for instance by governments, is also having far-reaching consequences. In addition, technological development continues to have a considerable impact on work content, competence requirements and training needs. These changes also influence recruitment, staff mobility and development.

The generation gap

An ageing staff structure is creating difficulties in a number of NSIs. For some, the retirement of a substantial number of staff members in the short term will create an acute recruitment problem. Improving motivation, especially amongst older staff, and creating smooth relations between the more experienced older staff and the more IT-attuned younger age groups, are other areas of concern.



The Task Force coordination team (from-left-to-right) Bernadette Reynebeau, Inger Odell-Mietzner and Alan Clarke discussing the action programme.

Improving the attractiveness of their organisations to enable them not only to recruit but also keep good staff, was another question of interest to participating NSIs. Other topics of a more general nature concern career planning, performance assessment and staff development.

Action plan 2001

At its meeting on 27 November 2000, the Task Force decided that attention shall be focused initially on four topics:

- Terminology: A working glossary of terms and conceptual definitions will be drawn up to facilitate discussions and minimise misunderstandings.
- Descriptions of the organisational structures of the NSIs: This is needed to understand better the different approaches to HRM and HRD.
- Competence requirements: Competence plays a key role in many HRM and HRD activities and it is therefore planned to review and compare the competence requirements applying to staff of the institutes.

And as a topic of common concern to the NSIs and Eurostat:

- Selection, preparation and reintegration of SNEs.

Making secondment work better

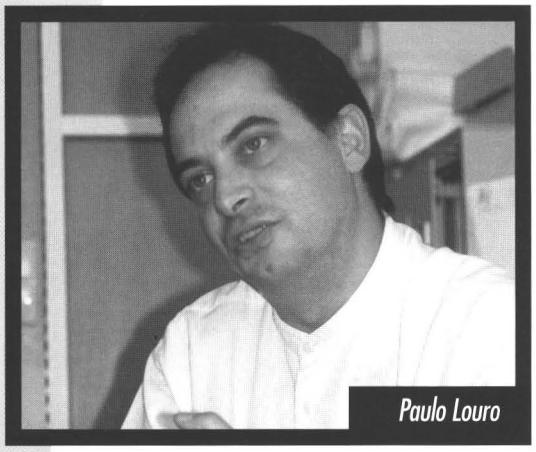
A subject of practical concern to Eurostat and all the national statistical institutes is that of the seconded national experts (SNEs) – a system whose value is not fully exploited, the participants agreed. Some institutes experience difficulties with the selection and preparation of candidates, others with reintegration after secondment. As part of its initial action programme, the Task Force will examine this issue and make proposals for improving the system.

And for the future...

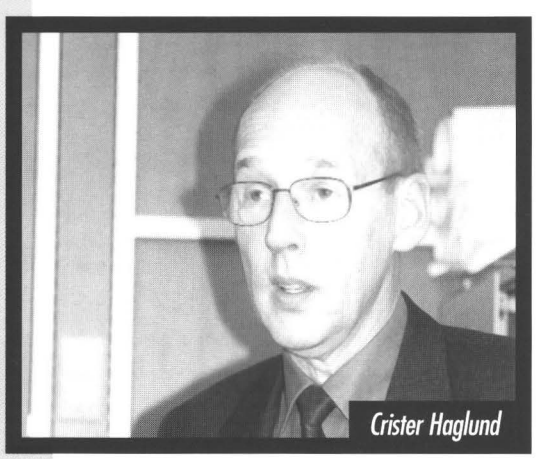
This first agenda is not the end of the story. Before moving on to more complex issues, it was agreed to proceed with some thorough groundwork: more information on the statutory framework, the size, structure and manner of operation of the participating institutes and the human resource management and development units will be needed before judging the quality and significance of the different approaches adopted.

In addition, the relevant terminology of HRM/HRD concepts will be examined and a working glossary prepared to minimise conceptual misunderstandings.

The core of the initial action programme responds to some of the questions discussed at the inaugural November meeting but the broader issues will be subjected to a future review and may be built into future work programmes. Later editions of *Sigma* will report on the results of these activities. ■


Paulo Louro


Pirjo Liewendahl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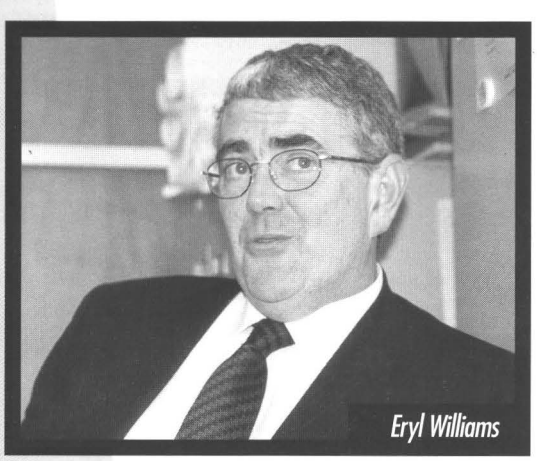
Eryl Williams

Paulo Louro, Head of Unit 'Recruitment and Training', INE Portugal: "Statistics is a rather restricted, narrow market. There are not many people working in this field in Portugal, so we appreciate the opportunity to learn from other countries' experiences. By participating in this Task Force, I hope to understand what other countries do better in terms of training, career planning, assessment, etc., and perhaps exchange views on the management of human resources in statistics too – an area that is becoming increasingly harmonised."

Pirjo Liewendahl, Head of Unit 'Human Resources Development', Statistics Finland: "We are interested in visions. What is the future of statistical professions? What impact does information technology have on statistical work and how should the next generation of statisticians be educated and trained? How do work processes develop? What competence and skills are required of the NSI's staff in the longer-term perspective? I hope that, together, we will find answers to these questions.

"Statistics Finland shares many of the problems of other statistical offices, for example, recruitment or the age structure of staff. The benefit of the Task Force is that it enables us to compare with the others.

"And, vice versa, other members of the Task Force might also benefit from Statistics Finland's experience with staff satisfaction surveys or the training programme for academics carried out in collaboration with Helsinki University. Statistics Finland has also developed models concerning the link between official statistics, universities and research institutes, and has, for instance, set up a master's programme for statistical professions at the University."

Crister Haglund, Director of Personnel, Statistics Sweden: "The most important thing about the Task Force for me is the opportunity for benchmarking. We all have the same daily work, the same issues and the same problems. We might have different solutions, though, and the Task Force enables us to learn from each other.

"Another important subject is the secondment of staff to Eurostat, which in my view needs clear rules and provisions to make the most out of this tool."

Eryl Williams, Director of Human Resources at the Office for National Statistics: "We are not going to change the world but we will be able to help each other. We are all in the same business, we have similar skills and we have common interests concerning recruitment, competence frameworks, etc. There is also the question of secondment of national officials to Eurostat. So nothing is more natural than to share information and exchange views. I am convinced that in a few months' time we will have made some progress.

"UK statistics find themselves in a double reform process: Len Cook, Chief Executive since last year, initiated a new business strategy that should be accompanied by a new approach to IT and a new human resources strategy. In addition, the British government set up a reform programme for the civil servic which includes a range of practical targets."

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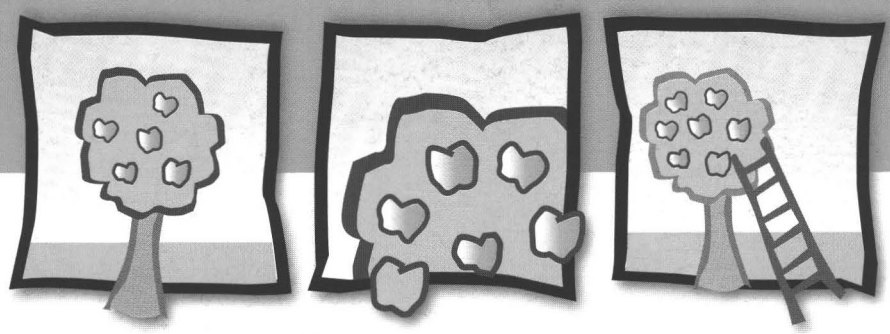

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